LORD HALL LIBRARY

REVIEW AND FORECAST Number

L AND GAS JURNAL

OR LONGER LIFE

BUY Wilson RIGS!

A WILSON RIG WILL LAST 10 YEARS AFTER PAYING FOR ITSELF!

The New WILSON Torcair-Roadair RIG!

FIVE AR FEATURES— clusive to Wilson!

- Designed to operate either with ithout torque converters.
- Four Friction Clutch Speeds to Drum.
- Equipped with Air-Tube Disc ches, on all Drives. The World's clutch!
- Box type compound that is split sections, one for each engine.
- No Flexible Coupling between ine and compound and needs none.

Compare Prices — Before You Buy!

SEE YOUR NEAREST WILSON DISTRIBUTOR OR WRITE FOR BULLETIN 180

Wilson MANUFACTURING COMPANY, Inc.
WICHITA FALLS, TEXAS

PRICE 50 CENTS TABLE OF CONTENTS PAGE 157 JANUARY 25 1951

CAN YOU DO THIS *with your present* ORIFICE METERS?

INTERCHANGE HIGH SIDE CHAMBERS

Illustrating how ... is converted ... range to ... simply interchanging the ... chambers.

It's an exclusive advantage in

ROCKWELL-EMCO *Orifice Meters*

The Rockwell-Emco gauge can be converted to any of six standard ranges—20", 50", 100", 200", 300" or 400", by simply unbolting one high pressure chamber and exchanging it for another. This feature permits the meter to be quickly and economically adapted to varying field conditions. It's a simple job that can be done on location.

Learn all about this conversion feature and the many other advantages of the Rockwell-Emco orifice meter. Ask the nearest District Office for a demonstration or write for bulletin 1050.

ROCKWELL MANUFACTURING COMPANY
Pittsburgh 8, Pa.

Atlanta Boston Chicago Columbus Houston
Kansas City Los Angeles New York
Pittsburgh San Francisco Seattle Tulsa

Make your Orifice Gauges

the equivalent of Straight-Readers

THE ROCKWELL-EMCO INTEGRATOR

With a Rockwell Emco Integrator you can read from the dial counter the true values of recorded flow on various makes of simple flow meters. The integrator mechanically computes orifice meter charts—up to 300 average charts a day. Accuracy is assured since the operator traces the same recording of static and differential as was made by the gauge. Write for bulletin 1016.

They Say—

Oil Industry Ready

"It should be obvious that all industry of the nation is preparing for a total military emergency. International tension makes it equally apparent that we should permit nothing to delay this preparation.

"The framework for directing our vast industrial power to our protection is assuming final shape. That is measurable progress. Necessary refinements can come later.

"I am confident of the ability of the oil industry to meet its obligation. I am satisfied that it will be able to carry its full share of the load. To a large extent this confidence springs from intimate knowledge and an appreciation of the industrial structure now being assembled for the oil industry.

"Basic planning, with the full and constructive support of Secretary of the Interior Chapman, takes advantage of experience gained in World War II. Further, within this framework and to direct and coordinate its efforts, we find men of experience selected from within the industry. This makes for confidence.

"The form this framework must ultimately take to render the greatest possible service to our nation should be realistic. It must not be distorted by dictatorial desires of anyone in any position. It must embody coordination; not regimentation or all-out control in any of its forms. It must visualize—and actually anticipate—basic requirements of the industry in terms of materials, manpower and incentives. . . .

"But in the building of this framework we must be sure it is flexible; not so unyielding as to prevent a quick change of pace. And we must never lose sight of the need to return to industrial freedoms once the emergency is past. We must be alert to trends that could hamper or actually prevent such return to freedom. . . . We must guard our freely relinquished freedoms against internal as well as external attack. That is our job and our duty, not only to the industry, but to our nation as well."

J. Ed Warren, president, Independent Petroleum Association of America.

Big Business' Advantages

"In our country of free men there has been no ceiling placed on what the individual can accomplish. There have been no class barriers. The height to which a man can climb up the ladder of success is determined only by his ability and perseverance. Even the poorest immigrants can and often do make careers that lead to

sleep's unaffected...

his factory's protected

Worry! Fret! Loss of sleep thinking about fire cutting into production time . . . destroying valuable records . . . costing lives of employees . . . all are anxieties of the past when your factory's protected with modern, approved C-O-TWO Fire Protection Equipment.

For example, the new C-O-TWO Low Pressure Carbon Dioxide Type Fire Extinguishing Systems keynote flexibility to meet your particular fire protection needs. Flammable liquids, electrical equipment, storage and manufacturing processes can all be made firesafe from a single low pressure carbon dioxide storage tank . . . capacities range from one to fifty tons of fire killing carbon dioxide. If fire should strike the fast-acting, non-damaging, nonconducting carbon dioxide extinguishes the blaze in seconds . . . no water damage, no lingering odors.

Further, when a C-O-TWO Smoke or Heat Fire Detecting System is used in combination with a C-O-TWO Low Pressure Carbon Dioxide Type Fire Extinguishing System, the first trace of smoke or spark of fire in a protected area immediately sounds an alarm . . . then the fire quenching carbon dioxide is readily released into the threatened area.

So, whatever your fire protection problem, let an expert C-O-TWO Fire Protection Engineer help you in planning complete and up-to-date fire protection facilities now. Write us today . . . tell us about your particular fire hazards, our experience is at your disposal . . . no obligation of course.

C-O-TWO

C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK 1 • NEW JERSEY

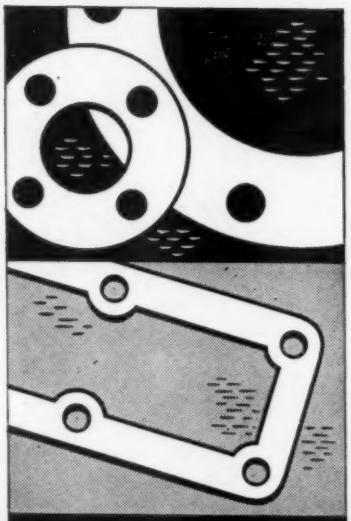
Sales and Service in the Principal Cities of United States and Canada

Affiliated with Pyrene Manufacturing Company

MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

Squeez-Grip Carbon Dioxide Type Fire Extinguishers • Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

JOINTINGS *for the* PETROLEUM INDUSTRY



Our range of packings and jointings comprises qualities suited to the exacting needs of the petroleum industry and resistant to the oils and solvents used therein.

We also manufacture Cord V Belts to the A.P.I. Specification.

PERMANITE
TRADE MARK

TURNER BROTHERS ASBESTOS CO. LTD.
A MEMBER OF THE TURNER & NEWALL ORGANISATION
HEAD OFFICE AND WORKS ROCHDALE · ENGLAND

seats in the hall of fame. Individual freedom has provided the initiative through which Americans have developed their business units to whatever size was required for maximum efficiency in producing what people wanted. Because the demands of the people for more and better goods have grown so enormously, the size of the business units necessary to fill these demands has had to grow as well, so today we have some very large companies—the companies which have become known as Big Business.

"Big Business is the direct result of big demands. The American people are not content with a standard of living that prevails in most parts of the world. They need and want many things that a small business working alone could not hope to give them. . . ."

Henry B. du Pont, vice president, E. I. du Pont de Nemours & Co., Inc., in a speech before the Tulsa Chamber of Commerce.

CALENDAR

1951

January

Southern Gas Association, employe-relations section and accident-prevention round tables, Mobile, Ala., January 26.

Instrument Society of America, New York section, Hotel New Yorker, New York City, January 26-27.

February

American Society for Testing Materials, Committee D-2 on Petroleum Products and Lubricants, Shoreham Hotel, Washington, D. C., February 4-9.

New York Oil Heating Association, Inc., Hotel Statler, New York, February 5.

Missouri Petroleum Association, annual convention and trade exhibit, President Hotel, Kansas City, Mo., February 5-7.

American Institute of Electrical Engineers, Tulsa Section, meeting on explosion-proof electrical equipment, Michaelis Cafeteria, February 8.

American Geophysical Union, twenty-sixth regional meeting, Fresno State College, Fresno, Calif., February 9-10.

American Institute of Mining and Metallurgical Engineers, annual meeting, Jefferson and Statler hotels, St. Louis, February 19-22.

Kentucky Petroleum Marketers Association, annual meeting and trade show, Brown Hotel, Louisville, February 20-21.

Kansas-Oklahoma Water Flood Operators, monthly meeting, Booth Hotel, Independence, Kans., February 21.

National Association of Corrosion Engineers, Tulsa Section, Short Course on Practical Control of Pipe-Line Corrosion, Mayo Hotel, February 21-23.

Missouri School of Mines and Metallurgy, water-flooding symposium, Rolla, Mo., February 23.

Iowa Independent Oil Jobbers' Association, Inc., annual convention, Hotel Fort Des Moines, Des Moines, February 21-22

Wisconsin Petroleum Association, annual convention and equipment show, Milwaukee Auditorium, Milwaukee, February 27-28

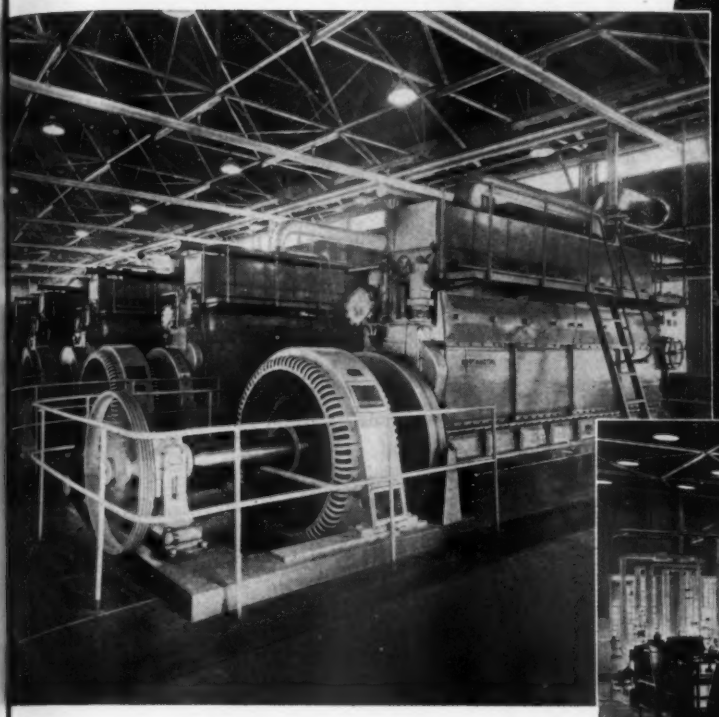
San Joaquin Valley Oil Producers Association, annual meeting, Bakersfield Inn, Bakersfield, Calif., February 28.

March

American Association of Petroleum Geologists, Rocky Mountain Section, Shirley Savoy Hotel, Denver, March 1-2.

Two more new plants select..

ELLIOTT FABRI-STEEL GENERATORS



Seven Elliott generators, rated 656 kva, driven by Worthington gas engines in a recently built natural gasoline plant.

In another new gasoline plant — three Elliott 300 kva generators, driven by Ingersoll-Rand gas engines.

A "natural" IN NATURAL GASOLINE PLANTS

■ Because the name Elliott is ace high in the oil industry, the selection of Elliott generators in the two new gasoline plants illustrated above represents a logical decision, soundly based upon confidence in quality performance.

Elliott Fabri-Steel generators have the crack-proof strength of welded steel in frame and spider, imparting a rigidity that keeps air gap unusually constant. Back of this are a multitude of construction details developed for enduring service and applied by veteran craftsmen. These are factors which give a performance impelling one power company executive to remark "The more we hear of generators generally, the better we like our Elliott units".

ELLIOTT FABRI-STEEL GENERATORS have the extra strength of electrically welded fabricated steel in stator frame and rotor spider . . . extra long life and dependability in taping and insulating of stator coils, extra bracing of windings, silver brazing of damper winding joints . . . extra low cost maintenance in easy air gap adjustment and accessibility for periodic cleaning.

The full story of these generators is covered in Bulletin PB-2000. On request.

J-7

ELLIOTT COMPANY

Ridgway Division, Ridgway, Pa.

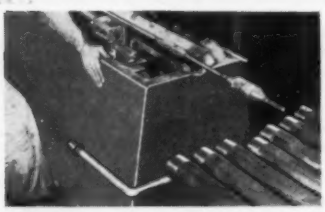
Plants at:
JEANNETTE, PA. • RIDGWAY, PA.
AMPERE, N. J. • SPRINGFIELD, O.
NEWARK, N. J.
DISTRICT OFFICES IN PRINCIPAL CITIES

SAVE THAT PIPE
By Protecting Against Corrosion!

*OVER 4 MILLION FEET OF OILFIELD PIPE HAS BEEN TUBE-KOTED FOR USE IN DOMESTIC AND FOREIGN FIELDS

Tube-Kote Prevents Trouble That Starts on the Inside!

The Tube-Kote plant-controlled process of applying "TK-2," thermo-setting (baked on) plastics assures a tough, extremely durable protective coating on the inner surfaces of oil field tubular goods. Prevents corrosion from the inside, ends problems of paraffin deposition, eliminates many costly "shut downs" due to pipe failures.



Tube-Kote fully automatic internal coating unit applies a carefully controlled film of "TK-2" plastic in each coating operation.

A view of the Tube-Kote baking ovens which can handle over 12,000 feet of tubular goods per hour.

TUBE-KOTE

TUBE-KOTE

First Name In Corrosion Resistance

2520 HOLMES ROAD . . . P. O. BOX 8123, HOUSTON, TEXAS

WIRE, PHONE OR WRITE FOR TUBE-KOTE TECHNICAL SERVICE BULLETIN

New York Oil Heating Association, Inc., Hotel Statler, New York, March 5.

American Society for Testing Materials, spring meeting and committee week, Cincinnati, March 5-9.

American Petroleum Institute, division of production, southwestern district meeting, Hotel Beaumont, Beaumont, Tex., March 7-9.

Indiana Independent Petroleum Association, spring convention and refiners and suppliers exhibit, Hotel Severin, Indianapolis, March 8-9.

Texas Oil Jobbers Association, Inc., spring convention and refiners and suppliers exhibit, Shamrock Hotel, Houston, March 9-10.

Mid-West Gas Association, Hotel Fontenelle, Omaha, March 12-14

First South American Oil Congress, Montevideo, Uruguay, **March 12-16.**

Illinois Petroleum Marketers Association, annual convention, Sherman Hotel, Chicago, March 13-15.

National Association of Corrosion Engineers, annual conference and exhibition, Statler Hotel, New York City, March 13-16.

Gas Appliance Manufacturers Association, annual meeting, The Homestead, Hot Springs, Va., March 19-21.

Ohio Petroleum Marketers Association, annual convention and marketing exposition, Deshler-Wallick Hotel, Columbus, Ohio, March 20-22.

American Petroleum Institute, division of production, Mid-Continent district spring meeting, Herring Hotel, Amarillo, March 21-23.

North Texas Oil and Gas Association, annual meeting, Kemp Hotel, Wichita Falls, Tex., March 24.

Texas Independent Producers and Royalty Owners Association, fifth annual meeting, Beaumont, Tex., March 27-28.

New England Gas Association, annual meeting, Hotel Statler, Boston, March 29-30.

April

American Gas Association, industrial and commercial gas section, conference on industrial and commercial gas, Shoreham Hotel, Washington, D. C., April 2-4.

American Society of Mechanical Engineers, spring meeting, Atlanta, April 2-5.

Oil-Heat Institute of America, annual convention and National Oil-Heat Exposition, Navy Pier and Palmer House, Chicago, April 2-6.

Instrument Society of America, New Jersey section, Essex House, Newark, N. J., April 3.

American Petroleum Institute, division of production, Eastern district meeting, Deshler-Wallick Hotel, Columbus, Ohio, April 3-5.

Midwest Power Conference, fourteenth annual meeting, Sherman Hotel, Chicago, April 4-6.

New York Oil Heating Association, Inc., Hotel Statler, New York, April 9.

Mid-West Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, April 9-11.

Michigan Petroleum Association, annual spring convention, Detroit Leland Hotel, Detroit, April 10-11.

Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, April 10-12.

American Institute of Electrical Engineers, District 4 meeting, McFadden-Deauville Hotel, Miami, April 11-13.

American Gas Association, distribution, motor vehicle, and corrosion conference, Hotel Peabody, Memphis, April 16-18.

American Society of Lubrication Engineers, annual convention and lubrication show, Bellevue-Stratford Hotel, Philadelphia, April 16-18.

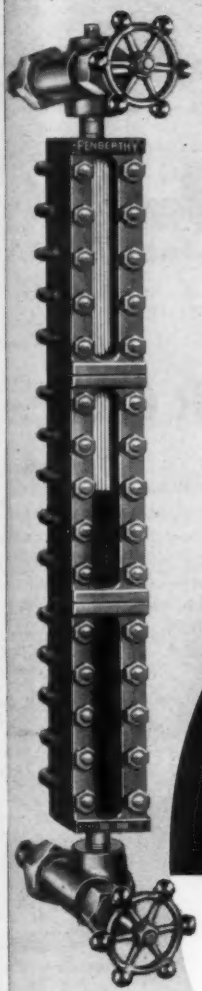
National Petroleum Association, Hotel Cleveland, Cleveland, April 18-20.

American Petroleum Institute, Rocky Mountain district spring meeting, Gladstone Hotel, Casper, Wyo., April 19-20.

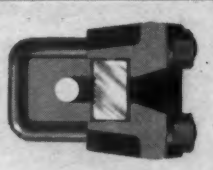
Brussels International Fair, twenty-fifth annual event, Brussels, Belgium, April 21-May 6.

Southern Gas Association, Buena Vista and Edgewater Gulf hotels, Biloxi, Miss., April 23-25.

American Association of Petroleum Geologists, Society of Economic Paleontologists and Mineralogists, Society of Exploration

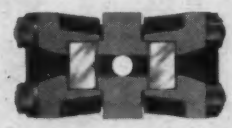


REFLEX

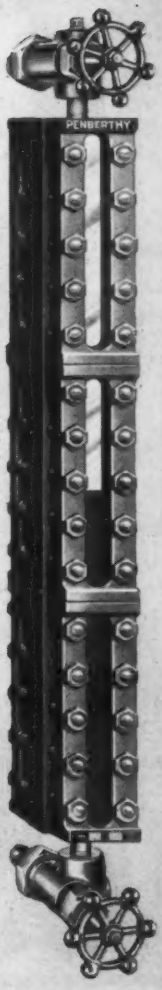


Shows empty space *white*—liquid *black* by means of a simple, unvariable optical principle. Read it accurately as far as you can distinguish black and white.

TRANSPARENT



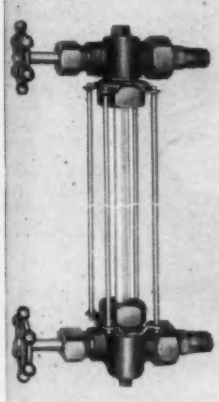
Used to observe color and density of liquids under high pressures and/or temperatures. Exceptionally sturdy construction—liquid chamber machined from solid block of metal.



PENBERTHY LIQUID LEVEL GAGES *Meet All Oil Industry Needs*

Penberthy Gages are made in a wide variety of types and sizes to meet all liquid level gaging needs in the oil industry. Four popular models are shown here. Many others (both standard and special) are available to suit all conditions of pressure and temperature. Penberthy Gages are built to the most rigid standards of quality and have the highest reputation in the oil industry. Conform with API-ASME Standards.

Write for new Catalog No. 35.

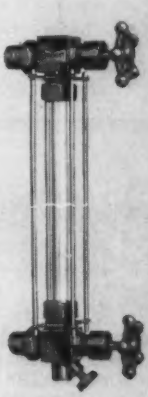


DROP FORGED STEEL

Chrome-Moly temperature resisting steel body, stainless steel trim. With or without regrinding removable seats. Tubular glass type.

ALL IRON

Tubular glass type, extra heavy body of special high strength alloy iron. Trim stainless steel, shanks alloy steel. Self-cleaning valves.



PENBERTHY PRODUCTS

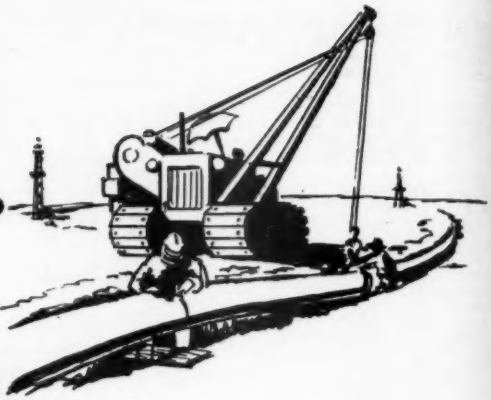
PENBERTHY INJECTOR COMPANY

DETROIT 2, MICHIGAN

Established in 1886 — *Canadian Plant, Windsor, Ontario*

4151

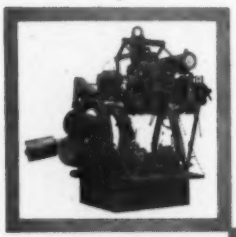
IN LAYING PIPE...



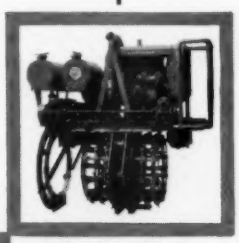
look to CROSE

Through coordinated experience, Crose offers sound recommendations and facilities so necessary in these days of competitive challenge. Profound improvement in pipe line work calls for "know how" and "know why" which Crose contributes freely . . . with no gimmicks, no guesswork. Any time is the best time to look to Crose for the best in both equipment, materials and supplies.

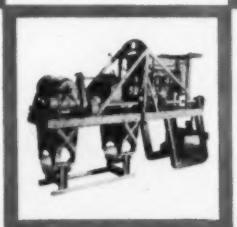
For detailed information, *write for descriptive pipe line equipment Catalog No. 950.*



CROSE 22" - 26" Line-Traveling COATING and WRAPPING MACHINE



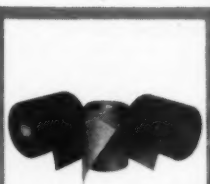
CROSE Model "K" PIPE CLEANING and PRIMING MACHINE



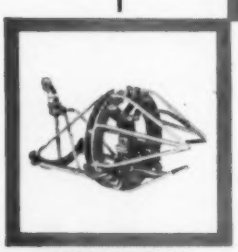
CROSE Auger-Type ROAD BORING MACHINE

CROSE PIPE CRADLE

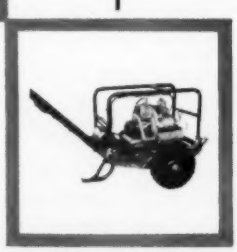
CROSE ENDLESS PIPE BELT SLING



PIPE WRAPPING MATERIALS—
Vitron Glass Fiber
Asbestos Felt
Kraft Paper
Rock Shield

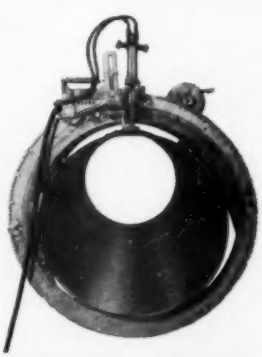


CROSE INTERNAL LINEUP CLAMP



CROSE 1500 WATT SELF-PROPELLED GENERATOR

CROSE-LITTLEFORD 23 BARREL PIPE COATING KETTLE
These kettles are also available in both 10 and 30 barrel capacity. Patch kettles are also available.



CROSE PIPE CUTTING and BEVELING MACHINE

M. J. CROSE **MANUFACTURING CO., INC.**
MAIN OFFICE: 2715 DAWSON RD., TULSA, OKLA.
BRANCH OFFICE: M&M BUILDING, HOUSTON, TEX.
EXPORT SALES: 500 FIFTH AVE., NEW YORK, N. Y.

Geophysicists, joint annual meeting, Jefferson Hotel, St. Louis, April 23-26.

Natural Gasoline Association of America, annual convention, Mayo Hotel, Tulsa, April 25-27.

Indiana Gas Association, French Lick Springs Hotel, French Lick, Ind., April 26-27

Interstate Oil Compact Commission, spring meeting, La Fonda Hotel, Santa Fe, N. M., April 26-28.

American Gas Association, industrial and commercial gas section, industrial gas school, William Penn Hotel, Pittsburgh, April 29-May 4.

American Geophysical Union, thirty-second annual meeting, National Academy of Sciences, Washington, D. C., April 30-May 2.

American Petroleum Institute, division of refining, sixteenth mid-year meeting, Mayo Hotel, Tulsa, April 30-May 3.

Materials Handling Conference, International Amphitheatre, Chicago, April 30-May 4.

May

American Institute of Electrical Engineers, District 1 meeting, Hotel Syracuse, Syracuse N. Y., May 2-4.

New York Oil Heating Association, Inc., Hotel Statler, New York, May 7.

American Gas Association, Natural-Gas Department, Dallas, May 7-8.

Independent Petroleum Association of America, mid-year directors' meeting, Cosmopolitan Hotel, Denver, May 7-8.

Gas Appliance Manufacturers Association, natural-gas department spring meeting, Dallas, May 7-9.

Liquefied Petroleum Gas Association, annual convention and trade show, Stevens Hotel, Chicago, May 7-10.

American Petroleum Institute, division of production, Pacific Coast district, spring meeting, Biltmore Hotel, Los Angeles, May 10-11.

American Institute of Chemical Engineers, regional meeting, Hotel Muehlebach, Kansas City, May 13-16.

American Gas Association, operating section, production and chemical conference, Hotel New Yorker, New York City, May 14-16.

Pennsylvania Gas Association, Wernersville, Pa., May 15-17.

American Institute of Electrical Engineers, District 5 meeting, Loraine Hotel, Madison, Wis., May 17-19.

Empire State Petroleum Association, Inc., Hotel Statler, Buffalo, N. Y., May 20-22.

American Petroleum Institute, division of marketing, mid-year meeting, Cincinnati, May 28-29.

Third World Petroleum Congress, Kurhaus, Scheveningen, the Netherlands, May 28-June 6.

American Petroleum Institute, standardization and standing committees, division of production, mid-year meeting, Brown Palace Hotel, Denver, May 28-June 1.

June

Society of Automotive Engineers, Inc., summer meeting, French Lick Springs Hotel, French Lick, Ind., June 3-8.

New York Oil Heating Association, Inc., Hotel Statler, New York, June 4.

American Society of Mechanical Engineers, semiannual meeting, Toronto, Ont., Canada, June 11-15.

NOMADS

Tulsa Nomads, third Friday of each month. After Five Room, Tulsa Hotel.

Dallas-Fort Worth Nomads, first Monday of each month, Greater Dallas Club.

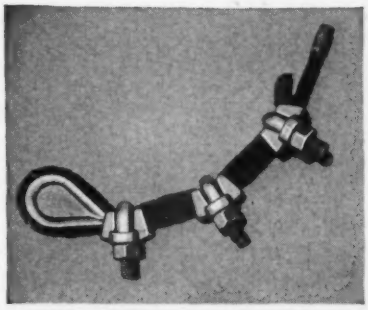
Houston Nomads, second Monday of each month. Ye Olde College Inn, Houston.

Los Angeles Nomads, second Wednesday of each month, Jonathan Club.

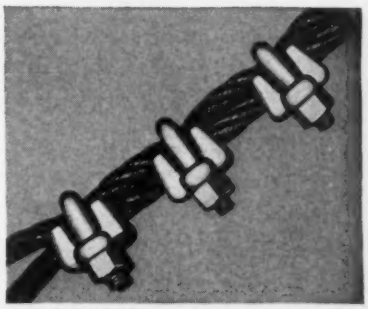
New York Nomads, first Monday of each month, Louis Sherry's, 300 Park Ave.

THIS PROVES

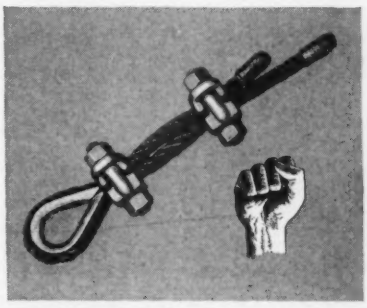
"Fist-Grip" Clips superior — see for yourself!



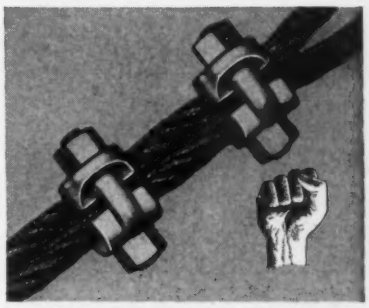
1. U-BOLT CLIPS crush rope into bowed shape when nuts are tightened. Weakened rope endangers safety.



2. CRUSHED ROPE is further damaged by U-bolt clips when rope is under tension. Note crimping.



3. "FIST-GRIP" CLIPS save rope, hold wire straight when clipped. There's no damage, no distortion with "Fist-Grip" Safety Clips.



4. STAYS STRAIGHT under tension. Efficient "Fist-Grip" Clips deliver 95% to 100% of rope's rated tensile strength.

Look to Laughlin for these "Fist-Grip" Clip benefits

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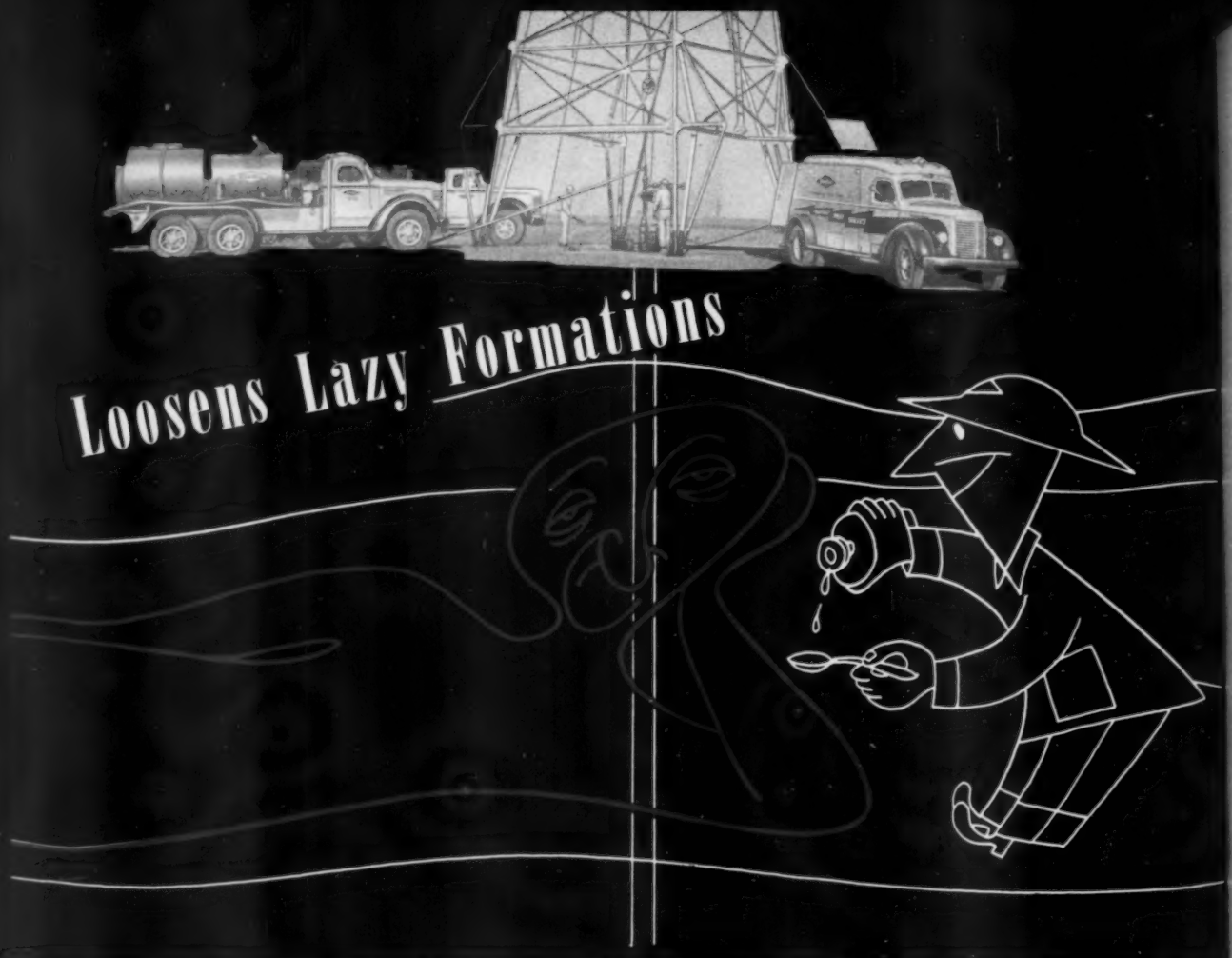

DOWELL SELECTIVE ACIDIZING opens up the tight zones —has made profitable producers out of many a sick well

The acidizing of the *right* zones in a well is often the key to a successful workover or completion. When Dowell engineers use the Electric Pilot to acidize your well *selectively*, treatment is held to the *right* zones.

A well was producing 96 bbls. of oil per day with a gas-oil ratio of 31,000 cu. ft. per barrel. Dowell engineers correlated an Electric Pilot Permeability Survey with other well data and recommended that the lower 3 ft. of a 13 ft. pay be acidized *selectively* with the Pilot. Following the treatment, production increased to 960 bbls. of oil per day and the gas-oil ratio dropped to 2000 cu. ft. per barrel!

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For additional information about selective acidizing and the other Dowell Electric Pilot Services, call your nearest Dowell office.

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FOR OIL INDUSTRY CHEMICAL SERVICE

the OIL AND GAS JOURNAL

January 25, 1951

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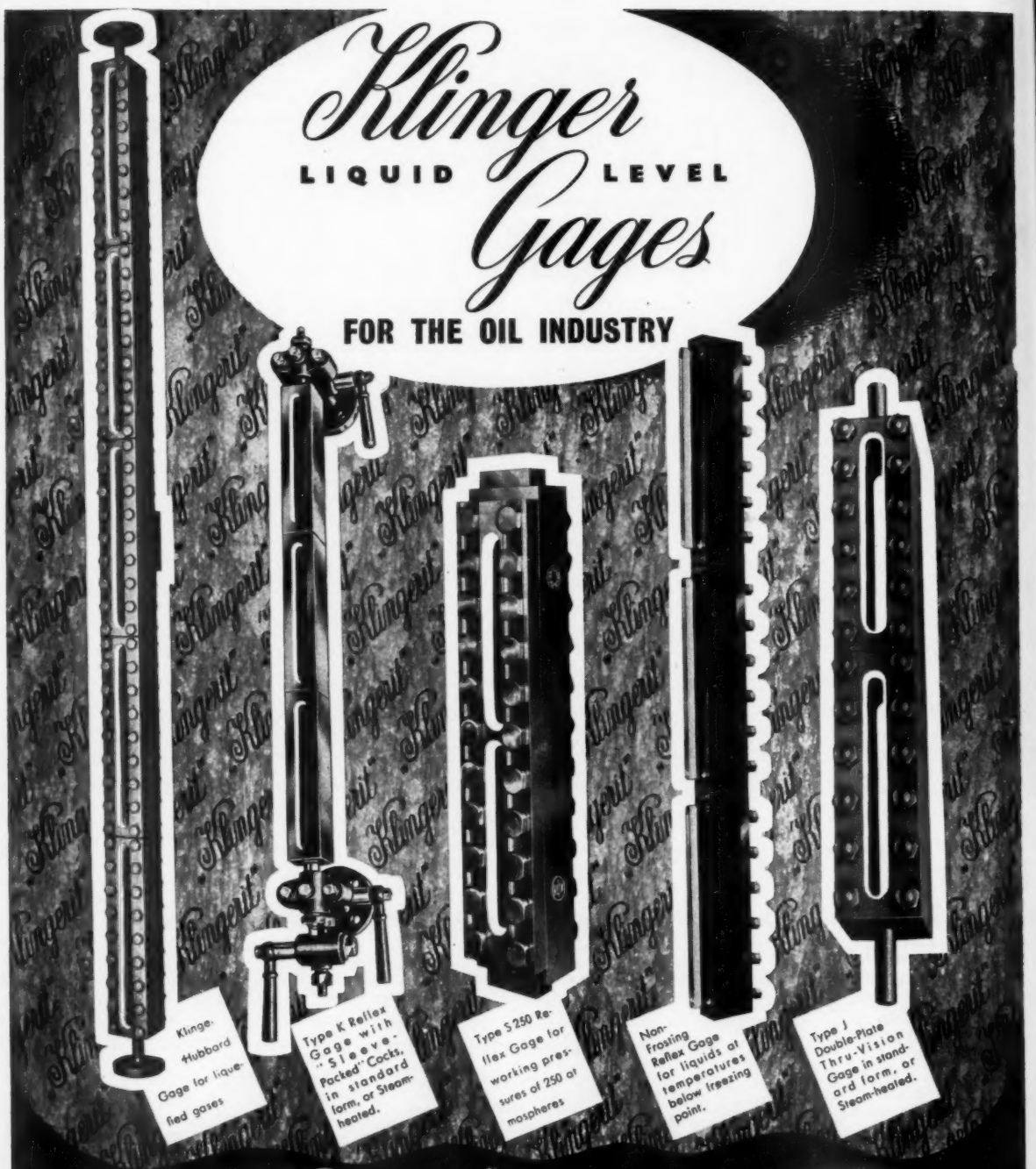
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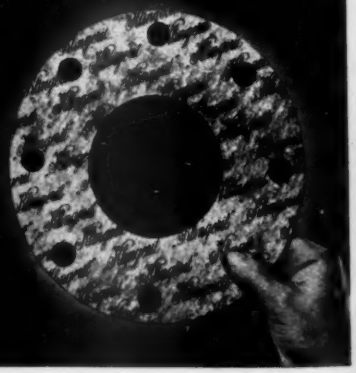

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JOURNALLY Speaking

Q & A

Q—HOW many wells were drilled last year?

A.—43,279.

Q.—How many wells will be drilled this year?

A.—43,843.

Q.—How do we know?

A.—We asked the men who drill 'em.

Q.—What area will have the biggest increase in drilling this year?

A.—California.

Q.—Will wildcat drilling increase this year?

A.—Yes, by 602 wells.

Q.—Is the average well getting deeper?

A.—Development wells, yes; wildcats, no.

Q.—Where was the greatest increase in wildcatting last year?

A.—Kansas.

Q.—Are we running out of oil?

A.—On the contrary, we discovered 1,366 million barrels more than we produced last year.

Q.—How much gasoline will be required this year?

A.—3,010,400 bbl. per day.

Q.—Is Texas still the biggest oil state?

A.—Don't be silly.

Q.—Where can I get more fascinating information like this?

A.—Right in this issue of our favorite oil publication.

Commercial

AND now a word from our sponsor—

Yes, folks, here it is again, just what you've been waiting for—the Big Yellow Book's annual review and forecast issue, bigger and better than ever and packed full of rich, tangy goodness—all the statistical vitamins and minerals you need for a balanced diet of information to guide your operations.

Here you'll find all the detailed figures on what the industry accomplished last year. And don't miss our amazing predictions of things to come, predictions that have proved 99 per cent accurate in the past.

No, folks, you can't afford to be without the information in this review and forecast issue. Nothing extra to buy, no box tops to send in—just turn to page 181 and start reading.

Plug

ALL horseplay in the discard, this issue really is quite a meal. You can't digest it all at one sitting but you can, we feel sure, quickly get some information you can put to immediate use in your business. The material is divided into topics and presented so that you can get the highlights at a glance.

But don't stop there. The more you study the data in this issue, the more you can discover about the operations and trends in our industry, and there is something in it about every branch and division and area. This volume is designed to be a reference work of value through the whole year and into future years. Keep it handy.

Brag

WE can't help blowing our own horn. Last week we told you how close our preliminary figures on well completions came to the drilling forecast in our Mid-Year issue last July. The final figures, published in this issue, are even more amazing. They show that our prediction was within 0.4 per cent correct on number of wells and 0.01 per cent in total footage drilled.

John Casper, our staff economist, is almost embarrassed about this. He says that to come within about 3 per cent of being correct is good forecasting but to hit it right on the nose is just plain luck. But we prefer to think that this is a tribute to the way the industry cooperates in giving us detailed information on its plans and to John's skillful weighing and interpretation of the data.

This year John forecasts the drilling of 43,843 wells, and we notice with pardonable pride that the industry and the Government already are using the figure of 44,000 wells as the 1951 goal. Of course a lot of things could happen to change this program in the next few months, but our favorite oil publication will keep close watch and will make a revised forecast if necessary.

—*Henry D. Ralph*

DO YOU KNOW HOW "Metal Petals" BRING YOU SUCCESSFUL CEMENTING RESULTS?

In any cementing where a lower zone must be protected from contamination by the cement slurry (as well as from sloughings or cavings) the Baker METAL PETAL Basket will be found both safe and successful.

The unit is constructed of a number of individual "petals" made of flexible sheet metal. These petals are mounted on reinforcing spring steel ribs, which in turn are mounted on a ring to form the Basket.

When running in the hole, the upward pressure of the fluid tends to close the "petals" thus providing fluid passageway between the Basket and the walls of the hole, without distortion of the Basket. As soon as the casing comes to rest, upward pressure by the fluid is relieved and the petals expand to contact the walls of the hole. Any tendency of fluid to move downward then presses the flexible petals more firmly against the entire circumference of the hole. Solids strained from the fluid tend to build a bridge inside the Basket which is thus converted into a one-way packer of great strength and effectiveness.

SIMPLE, EFFECTIVE ACTION

The "Metal Petals" not only expand to contact the entire circumference of large diameter holes, but also pack-off in holes of irregular shape; and the independent action of the individually mounted overlapping petals permits successful use of the Basket in casing programs with minimum clearances.

All-metal construction and design provide ample strength; lessen the possibility of splitting or otherwise damaging the Basket while it is being run in; and the metals are unaffected by usual acids employed for various purposes.

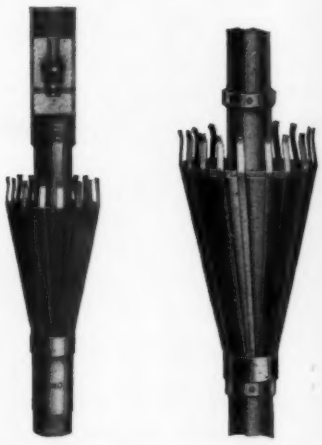
MOUNTINGS TO MEET ALL NEEDS

Baker Metal Petal Baskets are furnished mounted on plain or perforated nipples; with or without different types of Baker Whirler Float Collars; for a wide range of cementing applications. When conditions permit, it is recommended that Baker Metal Petal Baskets be "slidably" mounted to allow rotation, spudding, or reciprocation of the casing without distorting or damaging the Basket. Maximum efficiency of Baskets is assured when a Baker Model "G" Casing Centralizer is used immediately below the Basket assembly. For details see the Baker (or Composite) Catalog; or ask any Baker representative for specific recommendations.

TOP, Baker Metal Petal Basket (Product No. 340) ready for assembly into any required cementing hook-up. The strong, spring steel ribs, each with a "metal petal" attached, expand against the wall of the hole to form a safe "one-way" packer which prevents downward movement of the cement slurry.

LOWER VIEW illustrates the overlapping "petals" (each mounted on its individual spring steel rib) thus providing flexibility and freedom of expansion to pack-off around the circumference of large-diameter holes, or holes of irregular contours. A Baker Model "G" Casing Centralizer mounted just below the Basket is recommended.

LEFT, a popular hook-up consisting of a Baker Metal Petal Basket mounted on nipple, with a Baker Cement Whirler Float Collar with Solid Baffle (Product No. 305) which causes the cement slurry to pass through the baffled, side-whirler ports.



RIGHT- Where the casing is to be rotated or reciprocated while cementing, the Metal Petal Basket is "slidably" mounted between two Stop Rings. This permits free rotation, and ample vertical movement of the casing, without distorting or damaging the Basket.

HERE'S AN EXAMPLE OF STRENGTH

The Baker Metal Petal Basket holds a record for keeping cement ABOVE and OUT OF a "zone" possessing *lower formation pressure* and *higher permeability* than is likely to be encountered in any oil well. The "zone" was an *open* coal mine stope (lateral) through which a 16-inch hole had been drilled. A Baker Metal Petal Basket, mounted on 10¾" casing (used as the surface string) successfully supported a 640-foot column of cement slurry above the stope, without breakdown or leakage. This example not only demonstrates the bridging ability of the Basket assembly, but also is evidence of the tremendous structural strength which it possesses.

BAKER
METAL PETAL BASKET
PRODUCT NO. 340

BAKER OIL TOOLS, INC.
HOUSTON • LOS ANGELES • NEW YORK

Program of Work

The oil and gas industry has laid out a program of work for itself for 1951. This program is outlined in considerable detail in this issue, the Journal's annual Review and Forecast Number. It represents a consensus of the planning and thinking of the industry's leaders and operators.

It involves drilling more wells, doing more exploratory work, running more crude through refineries, and constructing more pipe lines and processing facilities. It is based on the presumption that the demand for petroleum products will be about 6 per cent higher than 1950 and that there will be further annual increases of comparable magnitude.

The program is based almost entirely on the normal civilian demands of a peacetime economy operating at a high rate of activity. The forecasts make some allowance for increased military demands for petroleum products, but for the most part the future military requirements are still an unknown factor. The industry's planned expansion is no more than prudent preparation for the foreseeable requirements of its regular customers.

It should be noted that the petroleum industry's work schedule is not the result of any government "plan" nor a directive from any central authority. It is purely the product of an industry which, in a free-enterprise system, has always met its consumers' needs, a composite of the foresight of hundreds of competitors.

This 1951 program of work would be a big undertaking in any year, but it promises to be doubly difficult this year because of the defense program. The difficulties may be of two sorts—competition with other industries and the military for materials and equipment, and undue interference by government edicts. If inept government "planners" with little knowledge of how the oil industry must operate should impose regulations which, however well meaning, result in hampering this program, the nation may suffer for lack of oil in the right place at the right time. The same thing may happen if the industry is denied access to the steel, manpower, and other essentials to carry out its program.

The best assurance that we will have adequate petroleum supplies in time of war is to permit the industry to expand in time of peace. What the oil and gas industry wants to do in 1951 is no extravagant or hastily improvised program. While based on the expectancy of peace, it can readily be adapted to the exigencies of war. Every bit of the planned expansion will be not only useful but essential whether war comes or not.

It is, therefore, vitally important that the industry be permitted to carry out its program of work. If defense needs dictate changes in parts of the program, to supply different types of products or to deliver them in different places than the industry now plans, the Government should make its decisions known early and the industry will comply. But until then this program should be pushed with the full support of government officials.

THIS WEEK

OUTLOOK—Industry plans to drill 43,843 wells this year. . . . Wildcatting will be up appreciably in many areas. . . . ¶Demand will be up about 6 per cent, with major increases in motor fuel and distillates, little change in residual and lubes. . . . ¶U. S. crude production, refinery throughput, natural-gasoline production will be up 6 to 7 per cent over last year. . . .

STEEL—Enough tubular goods to drill 44,000 new wells earmarked for producing branch of petroleum industry by PAD, NPA. . . . Out of 1,890,000-ton total, 5 per cent will be set aside as reserve for emergency needs of operators unable to secure steel through normal channels. . . . ¶Agencies report they will make every effort to see that steel is produced but PAD deputy administrator says there is considerable possibility that mills may not be able to make full amount. . . .

WASHINGTON—PAD, NPA reach agreement on who will control what in oil and gas industry. . . . Authority divided on products, equipment, raw materials. . . . ¶President sets down policy for voluntary measures to stretch labor force for both civilian, military needs, but warns that mandatory controls will be imposed if program doesn't work out. . . . ¶DTA appoints Richard H. Lambertson of Union Tank Car Co. as consultant on rail transportation of petroleum and other liquids. . . .

INDUSTRY—Magnolia unveils new-type modified airlift T.C.C. units at its Beaumont refinery, which will greatly expand capacity. . . . ¶Octane rating leveling off as material shortages effect TEL content of motor fuel, Du Pont survey shows. . . . ¶Widespread use of radioisotopes in industry and scientific research reviewed by New York A.C.S. . . . ¶Law introduced in Texas Legislature calling for establishment of minimum price of 10 cents per M.c.f. for natural gas. . . .

PIPE LINES—El Paso Natural Gas Co. to install internal-combustion (gas) turbines on its pipe-line system. . . . ¶Transcontinental pipe line officially opened in ceremonies at New York City. . . .

PRODUCTION—Texas allowable for February stepped up to 2,758,953 bbl. daily. . . . Railroad Commission keeping eye on adequate stocks in event of emergency. . . . ¶Efforts to obtain state-wide conservation bill in California Legislature deferred at request of governor. . . . ¶Recovery method which utilizes carbon dioxide may be of potential importance in obtaining more oil from exhausted oil fields. . . . ¶World crude-oil production maintained record high rate during November, with no appreciable change over October total, with average of 11,260,000 bbl. daily. . . .

TIDELANDS—Halting of exploration in Gulf of Mexico following Supreme Court decision in Texas-Louisiana cases last year disturbing to Defense Department officials. . . . ¶New bill introduced in Senate calling for resumption of exploration pending determination by Congress whether it will reverse decision. . . . ¶Texas Property Defense Association adopts joint plan of action on tidelands strategy. . . . ¶Dividing line for area of state and federal control is big question in tidelands case, Louisiana governor says. . . .

ACTIVITY—Crude production for week ended January 20 increased 281,750 bbl. daily to 5,962,050 bbl. daily, reflecting increase in Texas allowables. . . . ¶Total well completions for the week increased 25 wells to 873. . . . Wildcat completions totaled 197 wells, up 25. . . . ¶Decrease of 87 rotary rigs to 2,147, operating in United States on January 15, represented near-normal seasonal decline. . . .

TRENDS—Higher demands for residual fuel are being supplied by greater refinery production and increased imports. . . . ¶Stocks were not reduced in 4-week period ended January 13. . . . Refinery production of heavy fuel for the period was up 178,000 bbl. daily over same weeks last year. . . . ¶Residual imports are up about 125,000 bbl. daily. . . .

MORE OF THIS.—The oil industry will drill 43,843 wells this year, it is shown in the Journal's annual survey. The record on what all branches of the industry accomplished last year and the activity planned for 1951 is outlined in detail beginning on page 181 of this Review and Forecast number.

Steel Promised

Enough tubular goods for 44,000 wells (1,890,000 tons) slated for producing branch of oil industry by PAD, NPA

Bertram F. Linz

WASHINGTON. — The production branch of the petroleum industry stands to secure up to 1,890,000 tons of tubular goods this year, of which 5 per cent will be set aside as a reserve for the emergency needs of operators unable to secure steel through normal channels, and 128,000 tons will be earmarked for foreign operations.

An agreement was reached last week between the Petroleum Administration for Defense and the National Production Authority under which the latter will make every effort to see that the steel is produced. The amount involved is more than was available to the industry last year and is designed to permit the drilling of 44,000 wells, but Deputy Petroleum Administrator Bruce K. Brown said that while there is little hope the steel mills will be able to turn out more than the 1,890,000 tons of tubular goods, there is considerable possibility that they may not be able to produce the full amount.

(The Journal has predicted that a total of 43,843 wells will be drilled during 1951. See the annual review and forecast section beginning on page 181 of this issue).

Orders formalizing the arrangement are expected to be issued by NPA this week, and with the agreement set, Brown called a meeting of the representatives of the state regulatory bodies for a discussion of the situation and the possibilities of bettering our productive position.

Brown called on the state officials to suggest methods that might be used cooperatively to assure maximum production with the steel that will be available, but said that PAD itself had no formal plans to submit.

Tanker pool.—PAD officials also were interested in the hearing last week by the Maritime Administration on the proposed pooling of tanker tonnage to assure adequate capacity for military oil movement, at which an overwhelming majority of tonnage signed up for the agreement, which now goes to the Department of Justice for approval.

Octanes.—This week the PAD invited every refinery in the country, most members of the National Petroleum Council, the automobile manufacturers, a number of the marketing trade associations, and others to make their views known on proposals to limit the octane values of gasoline.

The hearing was held January 25 and opportunity was given for the presentation of views not only on the octane cut itself but on the form of the proposed order as well.

Objection voiced.—The principal objection to the cut is offered by companies like Sun, which make an intermediate grade of gasoline, and recommend that TEL be saved by an across-the-board reduction in lead use by refiners, which would preserve the present competitive position of the companies.

It was pointed out by Brown, however, that the top permissible usage of tetraethyl lead in automotive gasoline is 3 c.c. per gallon, but some refiners — particularly those having the finest and most ample refining and cracking equipment—use as little as 1 c.c. or ½ c.c. per gallon.

"If we attempted to effect a saving in tetraethyl-lead usage by requiring each refiner to use, say, only 75 per cent of his accustomed purchases of tetraethyl-lead fluid, the effect would be to force some refiners out of the business of making premium gasoline at all," Brown explained. "In view of the petroleum needs of the defense program we, naturally enough, cannot be a party to the execution of any such program."

Jet fuel.—Brown told a press conference that the switch from gasoline to jet fuel for military aircraft is not expected to affect domestic heating-oil supplies this year, but that considerable concern is felt for the time when the new jet-powered air force approaches maximum strength. He disclosed that pressure is being exerted upon the aircraft industry to develop engines which will not require highly specialized fuels but will be able to operate on whatever is available.

Controls Agreement

PAD, NPA reach accord on authority over oil, gas

WASHINGTON. — The Petroleum Administration for Defense and National Production Authority reached agreement last week after several months of negotiations regarding the respective authority of the two agencies over certain oil and gas products and certain products and equipment used by the oil industry.

Under the agreement, PAD will have full responsibility for the production and equipment of chemicals specifically produced for and used by the oil industry and for production machinery and equipment. Orders and regulations for the latter will be issued through NPA in accordance with its policies and procedures.

Chemicals.—In the field of chemicals, PAD is given authority over tetraethyl lead fluid, petroleum cracking catalysts, special inhibitors used in gasoline, lubricating-oil additives, and fluids and additives made especially for oil and gas drilling, and demulsifiers, but not over general industrial chemicals which may also be employed for the same purposes.

NPA is given authority over the production and distribution of carbon black, ammonia, and synthetic rubber, and also will be responsible for the distribution of certain products produced by the oil and gas industries, for the production of which PAD will continue to be responsible.

Other products.—Covered in this way by the agreement are petroleum coke; naphthenates, copper, and other metallic; chemical-grade aromatics, except mixed cuts used for fuels or solvents, including benzene, toluene, xylene, ethyl benzene, styrene, and other purified aromatics; oxygenated compounds such as alcohols, aldehydes, ketones, and organic acids; phenols and phenolic compounds; insecticides, fungicides, and herbicides; white-oil petrolatum and other oils used for medicinal, pharmaceutical, and cosmetic purposes; special waxes and polishes, excluding paraffin waxes; detergents, and plastics such as polythene.

The agreement also spelled out the items of production equipment for which PAD will have responsibility, as follows:

Surface equipment. — Derricks, substructures and accessories; rotary, cable-tool, or portable drilling rigs and machinery; rig irons, wheels, reels, beams, and pitmans; crown and traveling blocks; draw works and unit rigs; power and steam slush pumps; rotary tables; elevators, spiders, slips, hooks, and links; tubing and casing tongs and catchers; weight, torque, and speed indicators; swivels and accessories; control equipment, and other surface drilling machinery and equipment.

Subsurface equipment. — Rotary, cable-tool, or portable drilling rigs and machinery; rotary, fish-tail, and other drilling bits and reamers; cable-tool bits, jars and sockets; fishing, cutting, coring, and specialty tools and equipment; drill collars, drill stems, kelly joints, tool joints, subs and connectors; packers, screens and tubing catchers, and other subsurface drilling and workover equipment and ac-

cessories; guide shoes, float collars, combination guide and float shoes, and other cementing equipment.

Flowing-well equipment.—Christmas-tree assemblies; casing and tubing-head supports; chokes, manifolds, and other accessories; bolted, welded, wood-flow, and gathering tanks; oil and gas separators, treating equipment, regulators, control valves, and assemblies; pumping units and accessories, including back-crank equipment; pumping powers, pumping jacks and accessories; sucker, pull, and polish-rod equipment, and other rod-lifting machinery and equipment; rodless oil-lifting machinery and equipment.

Also included are: well-surveying machinery and equipment, including electric logging; well-servicing machinery and equipment, including cementing, gun perforating, and work-over; and exploration machinery and equipment.

Manpower Mobilization

President calls for voluntary measures to stretch labor force, but threatens controls if program doesn't work

WASHINGTON. — A new national manpower-mobilization policy was outlined last week by President Truman, calling for voluntary measures to make the labor force meet both military and industrial needs with the threat of mandatory controls if voluntary programs do not work.

In a memorandum to all department and agency heads the President instructed them to follow his policy with respect to programs under their control. The policy itself was based on recommendations from the National Security Council, the secretaries of Treasury and Labor, and the Office of Defense Mobilization.

"The most efficient use of the nation's manpower will be of vital importance in any prolonged effort to keep the strength of the United States at a high level and will be of the utmost importance in the event of full mobilization," the policy statement declared. "Consequently, it is important that manpower measures taken now be consistent with and contribute to the most advantageous use of our manpower should full mobilization become necessary."

Individualistic.—The policy lays down the principles that each individual will be expected to serve in the capacity in which he can contribute most to the total mobilization program; employers should assure full utilization of those abilities and skills of each individual which will contribute most to the total mobilization program through such measures as minimum manning, training, and assignment of duties in accordance with needs, skills and potentialities. The Government should develop and administer manpower programs designed to enlist to the fullest possible extent the support and resourcefulness of individuals in the achievement of the mobilization program.

The President ordered that deferment policies under the Selective Service Act provide for the occupational deferment of persons possessing critical skills if they are currently using such skills in essential activities, except to the extent the military services require persons with those skills, and deferment of a sufficient number of individuals in educational and training institutions to provide an adequate continuing supply of professional and highly skilled manpower.

Voluntary measures.—Recruitment, placement, distribution, training, and utilization of the civilian-labor force will be based primarily upon voluntary measures, but governmental manpower controls "will be used when and to the extent needed to assure successful execution of the mobilization program."

These controls, the policy set forth, will include "(1) Restricting indiscriminate labor turnover through control of separations; (2) Giving effect to manpower allocations by placing employment ceilings on employers with respect to the total number of workers, the number of men, or the number in particular skills; (3) Controlling of employer hiring; and (4) Enforcing adherence to utilization standards, including full use of women, handicapped workers, and minority groups."

Policy.—Under the policy, production will be scheduled, materials allocated and procurement distributed with "careful consideration" of available manpower. Whenever feasible from an economic and security standpoint, production facilities, contracts, and significant subcontracts shall be located at the sources of labor supply in preference to moving labor.

In developing the most efficient use of manpower, it was stated, "we must rely heavily on science and technology. The most effective use must be made of our supply of individuals having the special skills required to develop and produce the necessary equipment and to use and maintain it in the armed forces. Malutilization of such individuals represents a direct and unnecessary reduction of our defense potential.

Vigorous economy.—"While recognizing the very high priority of the armed forces' requirements for certain numbers and classes of manpower, the needs of mobilization also require a vigorous civilian economy," it was stated.

Benzene Output

Program to add 88 million gallons a year expected

WASHINGTON.—The National Production Authority is expected to instruct the Petroleum Administration for Defense this week to work out a program for the production of 88,000,000 gal. a year of benzene from petroleum.

The additional production was recommended by a group of benzene users and producers and potential users which met last week with NPA, PAD, and Solid Fuels Administration officials. The industry representatives suggested the target for production should be 280,000,000 gal. by 1953, which could be as much as 300,000,000 gal. if imports from Western Europe continue at the present rate of about 20,000,000 gal. a year.

Present production is around 12,000,000 gal. a year from petroleum and 165,000,000 gal. from coal. The output from coal is expected to reach about 180,000,000 gal. by 1953 as a result of the construction of new coke ovens for the steel expansion program.

PAD officials said that consuming facilities now under construction or authorized will use at least the additional benzene production now aimed at.

Amortization.—They said that applications for accelerated amortization of new facilities for benzene production have already been received for well over half of the proposed 88,000,000 gal. A technical committee is now working on methods of production to be included in any program developed by PAD.

At a previous meeting on benzene, a task group estimated the demand at 252,000,000 gal. this year, 307,000,000 in 1952, and 338,000,000 in 1953. Consumption last year was approximately 188,000,000 gal., and supplies this year are expected to be slightly more than 200,000,000 gal.

Large users of benzene estimated that supplies for civilian uses will become tighter this year, but that they will ease and perhaps equal present supply in 1952. If the mobilization program follows the expected pattern and production goals are met, however, supply will rise above the present level in 1953.

Even if there were no mobilization program, it was said, benzene demand would have reached 262,000,000 gal. a year by 1953 and 315,000,000 gal. by 1955.

WATCHING WASHINGTON

Bertram F. Linz

Too Much Rubber?

The plastics industry is seeking to have the Government's synthetic-rubber program cut back to give it a better break in the styrene supply.

Prior to the last war, the use of styrene, derived from benzene, was confined to plastics. During the war, styrene production was increased many fold to provide a feed stock for synthetic rubber, and most of that supply was taken over after the war by the plastics industry, which since 1936 has increased its output from $25,000,000 to more than $225,000,000 a year.

The Government's decision to increase the production of its synthetic-rubber plants to capacity is cutting deeply into the styrene supply, and it is estimated that when the rubber program gets into full operation within the next 3 months it will require some 33,800,000 lb. of benzene a month, or almost two-thirds of the total styrene capacity of approximately 53,300,000 lb. a month. The limitation on the availability of styrene, it is said, will mean a cutback of more than 40 per cent for the injection-molding industry.

The plastics industry took its case to the Senate small-business committee late last year, contending that so much more new rubber, natural and synthetic, will be available this year under the Government's program that military uses and stockpiling will not absorb the surplus over the 1950 consumption.

The committee was sympathetic to the industry's appeal and is now endeavoring to ascertain just how much rubber will be required and the possibility of cutting off any excess production that may be indicated, with a view to releasing styrene for plastics which, it points out, also are vital in many fields and required in the military preparedness program.

Tidelands and War

The halting of exploration in the Gulf of Mexico following the Supreme Court's decision in the Texas and Louisiana tidelands cases last year is disturbing to Defense Department officials.

The Munitions Board sees in the submerged lands a possible important source of oil supply in the event of an all-out emergency, and officials are hopeful that the introduction of the O'Mahoney "interim operation" resolution may spur Congress to do something to permit the resumption of exploration.

Defense officials apparently are less concerned with who is to administer the offshore oil lands than with when some form of administration will be set up, whether through restoration of title to the states or approval of the O'Mahoney resolution which would defer but not kill the states' attempt to regain their former tidelands properties.

Despite the fact that there is no indication the oil industry will not be able to meet all demands upon it in the foreseeable future, military experts, looking much further ahead and through darker glasses, would like to see tidelands development well under way. If necessary, they would like Interior Secretary Chapman to make some kind of deal with the states that would clear the way for legislation. Unless his hand is forced, however, Chapman doesn't want to concede anything he doesn't absolutely have to, and he is hopeful Congress will pass the O'Mahoney measure.

Gas Again

Indefinite postponement of the Federal Power Commission's investigation of the status of Phillips Petroleum Co. under the Natural Gas Act has been followed by a number of protests, all from gas-consuming areas, that the defense program is not an adequate reason for sidetracking the inquiry.

The case, initiated in 1948, has already been subject to seven postponements, six of them at the request of the company.

Several members of Congress have joined with officials in states where gas from the Phillips' fields is consumed in asking the commission to order an immediate hearing. The demand for action is based on the charge that the price of natural gas sold by Phillips has been substantially increased in recent months.

Unless the FPC takes action in the case it is probable that natural gas will again become an issue in Congress, where it might react adversely against another effort to secure passage of the Kerr bill which is reportedly being prepared. The Kerr bill would divest the commission of authority over independent producers and gatherers of natural gas who make "arms length" sales of their product to the interstate pipe lines.

Transport Consultant Named

WASHINGTON.—The Defense Transportation Administration announced last week that Richard H. Lamberton, assistant to the president of the Union Tank Car Co., Chicago, would serve as consultant on rail transportation of petroleum and other liquids.

The DTA is now engaged in a broad study of the rail transportation situation, but as yet has issued no orders looking toward maximum efficient use of equipment.

The National Production Authority, however, is continuing to tighten up on materials, among its recent actions being the following:

Amendment to Order M-4, January 13: Prohibiting the commencement of construction of commercial buildings without specific authorization.

Supplement 1 to Order M-1, January 17: Establishing a procedure to assure the prompt delivery of steel needed for the production of new freight and tank cars at the rate of 10,000 per month.

Order M-28, January 17: Providing for the equitable distribution among producers of defense rated orders for certain types of leather.

Order M-29, January 17: Reserving for defense rated orders certain leathers meeting federal specifications.

Firm-Up of Decision Urged

WASHINGTON.—Immediate action by Congress to firm up the Supreme Court's decision in the Standard Oil Co. (Ind.) case holding it lawful to sell at a reduced price in order to meet in good faith the legal price of a competitor *(The Oil and Gas Journal, January 11, 1951, page 49)* was urged last week by Sen. Pat McCarran of Nevada.

"This is the decision of the Supreme Court which we were told (by the President) Congress must await before it could take any action to clarify the confusion and uncertainty existing with respect to the interpretation of section 2(b) of the Clayton Act, as amended by the Robinson-Patman Act," McCarran told the Senate, referring to the veto last year of the O'Mahoney basing-point bill.

Private Construction Cut

WASHINGTON.—Further curtailment of private commercial construction was ordered by the National Production Authority January 15.

To make more critical construction materials available for the mobilization program, NPA announced that commercial construction will be restricted to that furthering the defense effort, essential to public health, welfare, or safety, or will alleviate or prevent a hardship to a particular community.

Transco Line Opened

Deliveries of natural gas through new 1,840-mile, 30-in. line formally inaugurated at ceremonies in New York City

Dahl M. Duff

NEW YORK.—Natural-gas deliveries through the new 30-in. Transcontinental Gas Pipe Line Corp. system were formally inaugurated here last week.

Claude A. Williams, Transcontinental president, said at a luncheon preceding the valve-turning ceremony that the company is now thinking in terms of the construction of a 36-in. additional line within the next few years.

Such a line would approximately triple the 555,000,000 cu. ft. daily capacity of the present 30-in. from Texas. Williams said an estimated 18,000,000 persons will be served by the Transcontinental facilities, and assuming normal growth over the next 5 years, potential demand would rise to 5 billion cubic feet daily, or roughly 10 times existing capacity.

Big potentialities.—While Transcontinental has taken no definite steps toward the even larger parallel line, Williams' remarks indicated again the expansion potentialities in the natural-gas industry. Many of the older transmission companies have been engaged in continuous looping since their first line was laid, and the continuation of these programs apparently depends only on the future availability of steel during the defense emergency.

The formal commencement of deliveries into New York was in itself a historic occasion for the gas industry. Though natural gas was introduced into Staten Island 1½ years ago from a connection with the system of Texas Eastern Transmission Corp., Transcontinental brings the first natural gas in large volume and into the principal boroughs of the world's largest city.

Ceremonies.—The ceremonies marking the initial deliveries took place at the new metering station at 134th Street on the Hudson River in New York. This is the terminal point of the 1,840-mile Transcontinental line from Texas. Here the gas is picked up in a joint $14,000,000 line of five New York utilities and carried to the gas-making plants of these companies for reforming and enrichment.

Initial deliveries into New York City were at the rate of about 80,000,000 cu. ft. daily. This will be built up gradually to the full quantity of 251,000,000 cu. ft. daily. The remainder of the Transcontinental capacity goes into deliveries to other customers from Louisiana to Pennsylvania. Transcontinental was only recently authorized a further capacity increase from 505,000,000 to 555,000,000 cu. ft. daily, the additional volume for North and South Carolina.

Throughput.—Current daily throughput of the entire line is 235,000,000 cu. ft. The firm has authority for 45,675 additional compressor horsepower, including a new station of 3,960 hp. near Greenwich, Conn. Present authorized horsepower for the entire system is 261,545.

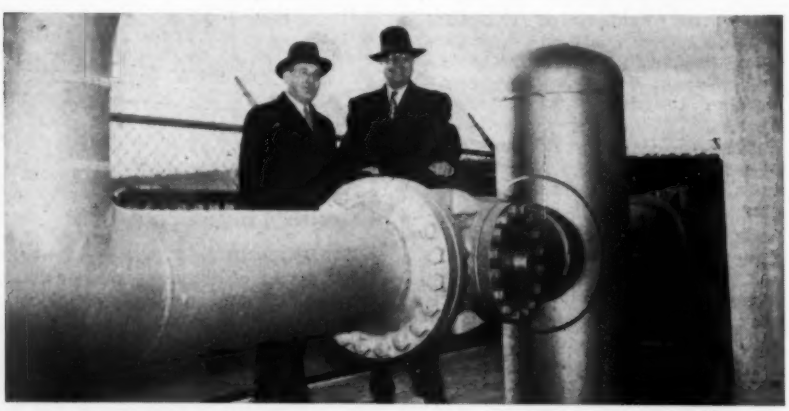
Seven compressor stations are now in operation for transmitting gas from the Gulf Coast to New York. Three steam-turbine-driven centrifugal compressor stations are now under construction at the following locations: No. 5, near Eunice, La.; No. 7, near McComb, Miss.; and No. 10, near Montgomery, Ala. These are expected to be ready for operation April 1.

New York City consumers will continue to receive a relatively low B.t.u.-gas from the utility plants even after natural gas is used as the raw material. Whether the result of the introduction of natural gas will be lower rates apparently is a question that will not be decided for some time.

Williams, while emphasizing the matter was one for the distributing utilities and the regulatory agencies and not his transmission company, said it is likely there would be no rate reduction until experience had been gained with the use of natural gas. Many distributing companies have been losing money, and the effect at first may be to move these companies from the red to the black side of the ledger.

New projects.—Transcontinental still has two more projects to carry out at the New York end of its line. One of these is the construction of an auxiliary city connection line of 20 to 26-in. from Paterson, N. J., across lower New York Bay and into Brooklyn.

The other project is a line across Westchester County north of New York City to allow deliveries to Northeastern Gas Transmission Co. which has a permit to serve a large part of New England. Williams said the Federal Power Commission had earmarked 64,000,000 cu. ft. from the Transcontinental system for Northeastern, but had retained jurisdiction over another 36,000,000 cu. ft. daily for possible assignment later to that company.



Benjamin F. Feinberg, chairman of the New York State Public Service Commission, and Claude A. Williams, president of Transcontinental Gas Pipe Line Corp. (right) at the valve-turning ceremony marking first deliveries of gas from the Transcontinental system into New York City. This is at the Hudson River metering pier where the gas is picked up by the city distributing utilities.

Too Many Burners

Installations threaten to outrun distillate supply

BOSTON.—The continuing high rate of oil-burner installations threatens to outrun the prospective increase in the supply of distillate fuel, according to J. C. Richdale, assistant to the president of Esso Standard Oil Co.

Richdale told the annual meeting of the Independent Oil Men's Association of New England that burner installations have been increasing at the rate of about 20 per cent a year. "I just don't think we can keep on increasing the middle-distillate cut at any such rate without getting into serious trouble if we run into a severe

winter in the next 2 or 3 years," he said.

Price relationship.—The present price relationship between distillate and other products provides no incentive for the refiner to expand yield of burning oil, Richdale said. This condition exists despite the fact that prices of burning oil have advanced considerably in the last few years.

"With crude oil at 6½ cents (a gallon) at the well and the price of heating oil voluntarily frozen at 7½ cents at the Gulf Coast, it takes a lot of persuasion to get refiners to increase their yields," he said.

Richdale told the New England oil distributors organization that storage capacity should be increased at all levels. This offers one way to avert possible supply difficulties. With greater storage, supplies of heating oil can be accumulated during the warm-weather months when demand drops off and transportation costs are at their lowest point.

Octane Ratings

They are leveling off, with material shortages being reflected in lower TEL content, Du Pont survey shows

MATERIAL shortages are being reflected in lower tetraethyl-lead content of premium and regular gasolines, with octane ratings leveling off from a previous upward trend, the January survey of E. I. du Pont de Nemours & Co., Inc., indicates.

The results, compiled from studies made in 45 cities, showed a steady climb in TEL content during the second and third quarters with a sharp reversal noted in the last quarter.

During the August-October period 26 cities showed a gain in TEL content of premium stock while during the November-January period only 10 cities showed gains. The slump was more notable with regular gasoline, where the number of cities showing gains dropped from 29 to 9.

Averages.—The unweighted arithmetic averages for premium octane ratings show smaller increases in the last quarter with the number of cities showing gains dropping from 35 to 28.

Regular ratings maintained the 0.2 octane increase seen in the previous two quarters, although the number of cities showing gains dropped from 29 to 24.

The survey is based on 680 samples of motor fuel collected between December 27, 1950, and January 4, 1951.

COMPARISON OF 1950 MOTOR-GASOLINE SURVEYS
(Octane numbers are by research method; arithmetic averages by cities.)

	Premium				Regular			
	Octane number			TEL content cc./gal.	Octane number			TEL content cc./gal.
	July	Oct.	Jan.	Jan.	July	Oct.	Jan.	Jan.
Aberdeen, S. D.	87.6	88.9	89.3	2.71	81.3	82.4	82.2	1.55
Amarillo, Tex.	86.8	88.4	88.3	2.50	80.5	79.9	80.6	2.42
Atlanta, Ga.	91.6	92.2	92.3	2.26	85.0	85.9	85.8	2.41
Bakersfield, Calif.	88.7	89.2	89.6	2.64	80.8	81.1	81.4	1.56
Baltimore, Md.	92.3	92.8	92.4	1.33	86.3	86.7	87.4	1.51
Boston, Mass.	91.9	92.7	92.5	2.19	86.4	87.3	87.1	1.79
Calgary, Alta.	84.5	84.6	83.7	2.32	78.8	78.8	79.4	2.09
Casper, Wyo.	88.5	88.8	89.3	1.42	81.5	82.0	81.9	1.14
Charlotte, N. C.	91.1	91.9	92.4	2.20	85.2	85.3	85.9	2.29
Chicago, Ill.	89.1	89.4	89.7	2.07	82.8	83.1	82.9	1.79
Cincinnati, Ohio	90.9	90.4	90.6	2.16	85.3	85.7	86.3	2.05
Cleveland, Ohio	90.9	91.0	91.0	2.19	86.1	86.5	86.4	1.96
Columbus, Ohio	91.0	91.5	91.6	2.39	86.3	86.3	86.7	1.87
Corpus Christi, Tex.	91.3	92.0	92.3	2.10	84.7	84.6	85.6	2.16
Dallas—Fort Worth, Tex.	91.4	91.7	92.1	2.35	84.4	84.2	84.6	2.28
Denver, Colo.	88.3	89.2	89.0	1.86	81.0	81.3	81.6	1.38
Detroit, Mich.	90.4	90.5	90.9	2.26	85.8	86.0	85.6	1.93
El Paso, Tex.	86.0	86.2	87.2	2.84	78.5	79.7	81.3	2.14
Great Falls, Mont.	89.7	89.7	90.6	2.25	81.9	81.5	82.2	1.60
Houston, Tex.	92.2	92.6	92.7	2.30	85.9	85.6	86.1	2.24
Indianapolis, Ind.	89.3	88.8	89.4	2.27	83.6	84.2	83.5	1.87
Jacksonville, Fla.	91.0	91.5	91.9	2.11	85.9	86.2	86.2	2.13
Kansas City, Mo.	89.8	90.1	90.7	2.46	83.5	82.9	83.4	1.78
Little Rock, Ark.	90.3	90.6	90.6	2.30	83.9	84.5	84.7	2.42
Los Angeles, Calif.	90.8	90.7	90.8	2.36	82.9	83.0	82.6	1.84
Louisville, Ky.	90.6	91.3	91.4	2.73	84.7	84.8	85.0	2.46
Memphis, Tenn.	90.6	90.7	91.7	2.53	84.3	84.9	84.8	2.30
Milwaukee, Wis.	89.3	89.2	89.3	1.92	82.9	83.1	82.9	1.64
Minneapolis, Minn.	87.8	89.8	88.8	2.64	81.9	82.3	82.0	1.68
Montreal, Que.	88.8	88.8	89.3	2.13	84.5	85.0	85.0	1.76
Nashville, Tenn.	90.0	91.3	90.6	2.29	84.7	84.6	84.5	2.16
New Orleans, La.	91.4	91.6	91.6	2.37	84.6	84.9	85.2	2.35
New York, N. Y. (Met. area)	92.4	92.4	92.2	2.18	86.2	86.1	86.7	2.04
Omaha, Neb.	88.3	89.7	90.2	2.59	82.3	82.3	82.7	1.45
Philadelphia, Pa.	92.3	92.5	92.6	1.74	86.9	86.5	86.4	1.47
Pittsburgh, Pa.	91.2	91.8	92.1	2.00	86.6	86.2	86.2	2.08
St. Louis, Mo.	89.4	90.1	90.4	1.77	82.9	83.6	83.8	1.68
Salt Lake City, Utah	87.8	87.8	90.7	1.40	79.5	79.5	79.9	0.86
San Francisco, Calif.	91.3	91.5	91.0	2.24	82.9	82.9	82.6	1.31
Seattle, Wash.	90.9	90.9	90.9	2.44	82.2	82.6	82.7	1.74
Shreveport, La.	89.6	90.3	90.7	2.58	83.9	84.3	85.4	2.43
Spokane, Wash.	90.5	90.8	90.3	2.47	82.4	82.0	82.0	2.54
Toronto, Ont.	88.3	88.8	88.8	2.21	84.2	84.3	84.2	2.07
Tulsa, Oklahoma	88.7	89.8	89.6	2.41	82.2	82.4	82.5	1.86
Wichita, Kans.	87.1	87.8	87.6	2.38	81.2	81.5	81.5	1.87

GENERAL COMPARISONS*

	July	Oct.	Jan.
Premium:			
Research Octane No..	89.8	90.3	90.5
TEL content (cc./gal.)	2.32	2.39	2.24
Regular:			
Research Octane No..	83.5	83.7	83.9
TEL content (cc./gal.)	1.99	2.09	1.91

*Unweighted arithmetic averages of figures for 45 cities.

New TEL Process Perfected

WILMINGTON, Del.—E. I. du Pont de Nemours & Co., Inc., has announced the perfection of a new continuous process for manufacturing tetraethyl lead which will enable the company to help meet the heavy demand for high-octane fuel.

Construction will start immediately on the first continuous-production unit at Du Pont's Chambers Works, Deepwater Point, N. J. The facilities will have an annual production capacity of about 50,000,000 lb. of TEL per year.

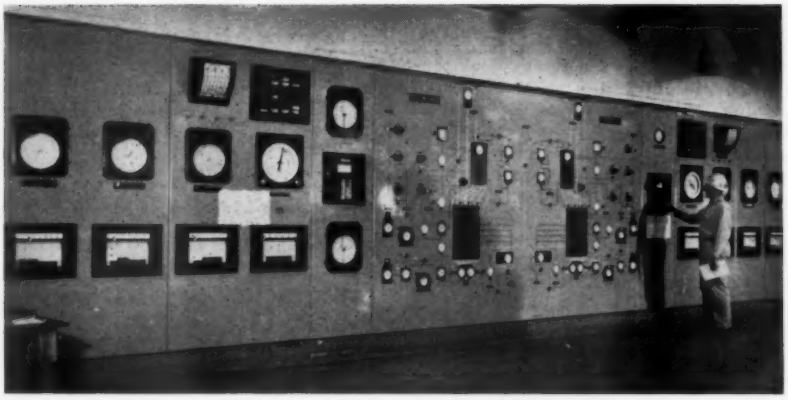
At present, TEL is made in batches, a process instituted by Du Pont in 1923. In addition to increasing productive output, the new continuous process eliminates the need for equipment made of special steel alloys which are essential in the batch process. Critical metals thus saved will be available for other defense uses. The new process is expected to entirely supplant the batch process in time.

Unit Rig & Equipment Sold

Unit Rig & Equipment Co., Tulsa, designers and manufacturers of oil-field equipment and ditching machines, has been sold to Ken W. Davis, prominent oil-field supply man of Fort Worth. Davis will take over all stock of Unit Rig at a price estimated at $2,000,000.

The announcement was made by William Guier, president of Unit Rig, who emphasized that the sale will involve no change in personnel or policy and that the firm will continue to distribute its products through the same suppliers as in the past. The sale, he said, was an expansion movement, necessitated by the company's growing business. Among other interests, Davis is president of Mid-Continent Supply Co. but it was stated that that firm is not connected with the transaction.

The firm was organized in 1936. by William Guier. Ray E. Carter is executive vice president; J. H. Smith, vice president and chief engineer; and F. C. Morton, secretary-treasurer.



Single control room for new air-lift T.C.C. units at Magnolia's Beaumont refinery, showing highly detailed graphic panels for each of the twin units.

New-Type Crackers

Modified air-lift Thermofor catalytic cracking units unveiled to industry at Magnolia's Beaumont refinery

Leigh S. McCaslin, Jr.

BEAUMONT.—The first commercial units of a new method of catalytic cracking were shown to the industry here this week at the 150,000-bbl. refinery of Magnolia Petroleum Co., an affiliate of Socony-Vacuum Oil Co., Inc.

Known as "modified, air-lift Thermofor catalytic cracking units," the new Magnolia equipment will produce high-quality automotive and aviation gasoline. The units will provide a 50 per cent increase in the Beaumont refinery's output of high-octane gasoline in comparison with the Houdry catalytic cracking units which they replace.

Of three of the new-type T.C.C. units on which construction began less than a year ago, two are now in operation. The third is scheduled for completion this summer.

Each of the units has a throughput capacity of 15,000 bbl. per day, compared with 10,000 bbl. daily for the Houdry units.

Smaller investment.—J. W. Newton, vice president and general manager, said the new T.C.C. units effect substantial reductions in investment and in operating costs as well as increasing the flexibility of the refinery's operations. They will contribute greatly, he added, toward Magnolia's efforts in meeting defense and civilian needs for high-octane gasoline.

Prime contractor for the three Beaumont units is the Lummus Co. Major subcontractors include: John Dollinger, Jr., Inc. (steel fabrication); Wyatt Boiler & Metal Works (steel fabrication and vessels); Consolidated Western Steel Corp. of Texas (vessels); and Allis-Chalmers Manufacturing Co. (blowers).

Continuous process.—In effect, T.C.C. refining provides a continuous method of catalytic cracking inasmuch as charge stock can flow uninterruptedly through a continuously moving bed of catalyst. The latter, in turn, is continuously regenerated by removal of the carbon which it absorbs from the charge stock, after which it is returned to the reactor.

Air lift.—The new types of T.C.C. units utilize an air lift for transfer of the catalyst instead of the bucket elevators. In addition a number of other developments are incorporated in the new design to simplify it and make it more efficient.

A new general arrangement has been made and the kiln has been completely redesigned.

Currently 19 more of the new-type T.C.C. units are under construction in addition to the two completed recently at the Beaumont refinery. When completed, they will have a combined throughput capacity of more than a quarter of a million barrels per day.

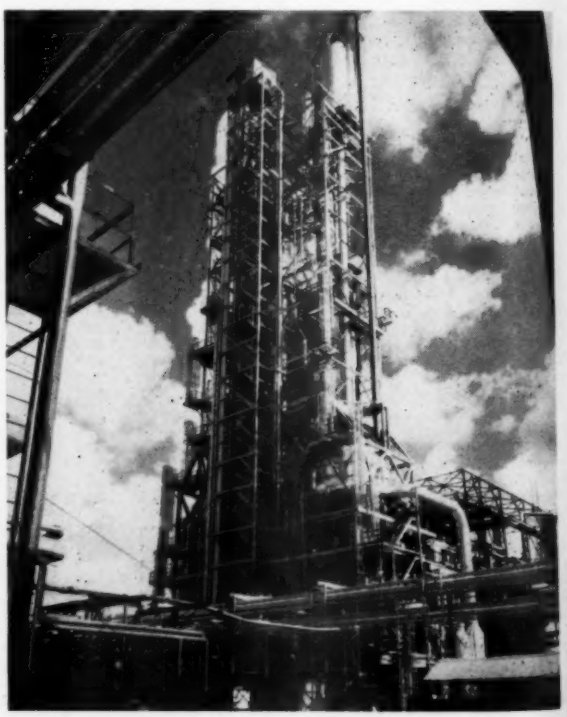
Ten of the total new-type T.C.C. units are scheduled for Socony-Vacuum refineries in this country, replacing a Houdry unit in almost every case.

The standard Socony-Vacuum modified T.C.C. unit is of 15,000 bbl. daily capacity. However, in order to make the process available to smaller refineries outside the Socony-Vacuum organization, prefabricated ones incorporating the same principles have been designed with throughput capacities as low as 1,500 bbl. per day.

Aside from air lift of the catalyst, another feature of the new-type units is that they enable the charging of heavy, nonvaporized feed stocks. Also, the design superimposes the reactor over the regenerator and simplifies the regenerator.

Other features.—Other T.C.C. features such as high liquid recovery, high catalyst activity, high cracking efficiency, and high gasoline-to-coke ratio are retained in the new modified, air-lift design.

The first of the Socony air-lift units at Beaumont, was put on stream October 6, without incident. During the first 2 weeks of operation, little or no operational difficulties were encountered. However, the catalyst attrition was higher than was anticipated. Accordingly, the unit was shut down in order to make minor alterations to the air-lift system. During this period a catalyst dryer was installed, since it was found that a large proportion of the catalyst break-



Twin T.C.C. units of the new air-lift type at Magnolia's Beaumont refinery, which were shown to the petroleum industry this week. They replace Houdry fixed-bed cracking units.

age was due to adding fresh catalyst of high moisture content.

Charge changed. — Shortly after the unit was put back on stream, the charge was changed from Miranda-Placedo crude to the visbreaker gas oil for which it was designed. During this period the unit has been operating at low severity to produce maximum No. 2 fuel oil. The limitation on the throughput of the unit has been the top reactor pressure, which has been run considerably over design. This pressure has been high because of excessive pressure drop in the vapor line to the synthetic-crude tower and the lines from the overhead condenser to the gas compressors. The high-line pressure drop will be corrected during the first unit shutdown.

This unit was started up with 37 A.I. chrome-bead catalyst. The activity of the catalyst is declining at an abnormally slow rate (it is presently about 36 A.I.) and it is anticipated that these air-lift T.C.C. units will be characterized by higher equilibrium catalyst activity, than the earlier T.C.C. units. It is believed that the catalyst attrition rate will eventually drop to below 2 tons per day average.

Turbines for Gas Line

El Paso Natural to install internal-combustion turbines for driving centrifugal compressors on its gas system

Paul Reed

EL PASO.—El Paso Natural Gas Co. is planning to install internal-combustion (gas) turbines for driving centrifugal compressors on its natural-gas system, J. F. Eichelmann, chief engineer, disclosed here this week. The program will be carried out in two parts, with initial installation calling for seven units of 5,000 hp. each, located at six stations, and a later addition of 140,000 hp. at 11 additional stations.

Both parts of the contemplated program are subject to Federal Power Commission approval. Applications for the project were filed early this month.

Each of the gas-turbine centrifugal stations will be located at an intermediate point between reciprocating stations. Provision is being made in the plans for later utilization of remote control, and after the units are in regular operation, it appears they may be easily handled by push-button operation at the dispatcher's office at company headquarters. Due to the mechanical simplicity of the gas turbines, they can be attended by small crews.

The gas turbines for the El Paso program will be furnished by General Electric Co. The centrifugal compressors will come from Clark Brothers Co., Inc., Ingersoll Rand Co., and De Laval Steam Turbine Co. It is reported that orders for gas-turbine-driven centrifugal-compressor units have been recently placed by two major gas-transmission companies in the North and East.

Features. — Features of gas turbines, which are attractive for their utilization in gas transmission, may be summed up as follows: (1) Mechanical simplicity; (2) Push-button control; (3) Small dimensions, light weight, and lack of vibration which make it possible to use low-cost foundations; (4) Economies in station installations make it possible to locate stations at shorter intervals with lower compression ratios and lower pressure drops; (5) No cooling of transmitted gas; (6) Cooling of lubricating oil with little water.

Setups.—The gas turbines to be used by El Paso Natural will be of the regenerative-cycle type. The turbine itself will weigh about 34,000 lb., and the regenerator, which looks like a large locomotive boiler, weighs 250,000 lb. The turbine and compressor together will occupy a space about 32 ft. by 9 ft. The regenerator will be placed outside the turbine building. By utilizing the heat of turbine exhaust gases in the regenerator it is possible to raise the turbine efficiency from 17 to 25 per cent. Regeneration reduces the amount of fuel necessary for attaining the 1,400° F. ultimate temperature necessary for the gas entering the high-pressure turbine.

Turbines of the regenerative-cycle type have been in the development stage but, as yet, have not been installed in commercial service. A 5,000-kw. General Electric compound-cycle gas turbine of a different type is now being installed by Public Service Co. of Oklahoma at Elk City, Okla., for early operation. A Texas utility has recently bought a 4,000-kw. regenerative-cycle gas turbine of the same type ordered by El Paso Natural. Oklahoma Gas & Electric Co. has a gas turbine of the simple type operating without regenerator at its Belle Isle power plant in the Oklahoma City area; exhaust heat is utilized there for feed-water heating for steam-turbine units.

Maintenance.—Two years' experience of General Electric Co. with the operation of gas turbines for 19,000-hour periods indicates that maintenance will be about the same or less than that for steam turbines. The only circulating water required for gas turbines of the type going to El Paso Natural is 30 g.p.m. for oil coolers.

Better balanced transmission operations will be possible through the closer spacing of stations with lower pressure drop, resulting in ultimately lower power requirements for the entire system. This becomes practicable because the features of gas turbines will make it possible to depart somewhat from current practices of concentrating compressor equipment at large stations spaced at long intervals.

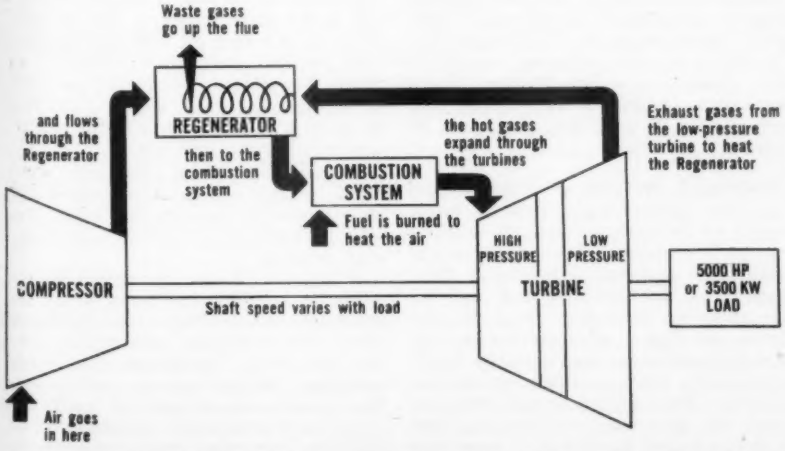

Waste gases go up the flue
REGENERATOR
and flows through the Regenerator
then to the combustion system
COMBUSTION SYSTEM
the hot gases expand through the turbines
Exhaust gases from the low-pressure turbine to heat the Regenerator
Fuel is burned to heat the air
HIGH PRESSURE
LOW PRESSURE
COMPRESSOR
TURBINE
5000 HP or 3500 KW LOAD
Shaft speed varies with load
Air goes in here

Diagram of General Electric 5,000-hp. regenerative-cycle gas turbine which El Paso Natural Gas Co. plans to install for driving centrifugal compressors at intermediate stations.

T.G.T. Buys Building

HOUSTON.—Tennessee Gas Transmission Co. has purchased the 22-story Commerce Building and its connecting 12-story annex for $11,000,000. The company occupies a portion of the building, and will expand to the annex as space becomes available. The structure was purchased from the Jesse H. Jones interests.

Texas Production

Commission sets February output at 2,758,953 bbl. daily, with eye on adequate stock levels in event of emergency

Leigh S. McCaslin, Jr.

HOUSTON.—Chairman Olin Culberson of the Texas Railroad Commission expressed a strong interest in having crude stocks at adequate levels for any national emergency during the state-wide allowable hearing held here last week.

In the course of the hour-long hearing he asked several representatives of major companies how much crude should be in refinery storage. None of the representatives was prepared to give him an immediate answer. Toward the end of the hearing, the chairman announced that he would like to have such figures from all Texas companies. If these are not forthcoming voluntarily within 8 days, Culberson said he would send letters to all companies.

Culberson's strong interest in oil for national defense possibly stemmed from a meeting scheduled to be held in Washington 2 days later. Culberson and his fellow commissioners, William J. Murray, Jr., and Ernest O. Thompson, were to meet with the Petroleum Administration for Defense to discuss the role of Texas oil in the emergency.

Culberson said he had received figures from a government agency which indicated that 63.3 per cent of the crude aboveground is not readily available for refining. This aroused his interest in determining the "minimum efficient level of refining operating stocks."

Allowable.—As a result of the allowable hearing, the commission added two producing days in January for the state's prorated fields, and also set a higher February allowable. It is an unusual measure for the commission to raise production during the month of the hearing as it did for January.

These upward adjustments followed testimony by a considerable number of operators that the crude situation is "tight." The increased allowables will result in 161,661 bbl. daily additional production for January over the previously set figure. February allowable production will be 170,323 bbl. daily over the January 13 figure.

The new January allowable is based on 22 producing days state-wide while the February figure is based on 20 days for the 28-day month. East Texas field and other state fields not falling under the general pattern were left unchanged. The February rate for East Texas is 17 producing days. Fullerton field will have 17 and the Willamar area only 11. These restrictions are due to limited gas-processing capacity in the two fields.

The two increases will give the state a crude allowable for January of 2,750,291 bbl. daily, and for February of 2,758,953 bbl. daily. Estimated production of natural gasoline and distillate of 336,553 bbl. daily gives the state a total permitted hydrocarbon flow of 3,095,506 bbl. per day in February.

Increases favored.—With the exception of Stanolind Oil & Gas Co., all the companies testifying said that they favored increased allowables. Practically all of them mentioned that they were currently drawing on stocks to fulfill their demands. Joe Owens, Sun Oil Co., Beaumont, was the first to testify, followed by Paul McDermott, Sinclair Oil & Gas Co., Fort Worth; Herman Pressler, Humble Oil & Refining Co.; H. S. Lane, Crown Central Petroleum Corp., Houston; Don Crites, Shell Oil Co., Houston; Raymond Meyers, Magnolia Petroleum Co., Dallas; R. A. Lynch, Phillips Petroleum Co., Midland; R. W. Thompson, Cosden Petroleum Corp., Big Spring, and Joe Brown, Gulf Oil Corp., Houston.

Most of the company representatives mentioned the fact that there was a need for more West Texas crude. At the state-wide hearing a month ago, Humble had stated that no more West Texas crude could be used at present. This situation has changed. In fact, the Humble representative said that the concern's West Texas-to-Gulf Coast pipe line is currently operating at 20,000-25,000 bbl. daily below capacity. Company-wide, Humble's receipts of crude are 60,000 bbl. daily below its demand. Even with the increased allowables, the company will be a net purchaser of crude.

Heating-oil demand. — Humble said that the current high demands are a result of demand for heating oil. The company's customers expect this demand to continue throughout February. It was pointed out by the Humble representative that an increase in Texas allowables puts the state's production considerably higher than the Bureau of Mines' demand forecast. With regard to this, Humble said: "In any case, we believe that it is important for Texas to meet the demands which exist currently for production from this state."

Jack Baumel, chief engineer for the commission, read two proposed orders to the group. One would require the running of a directional survey of all wells drilled beyond the known producing limits on the east side of East Texas field. No allowable would be given new wells until this survey had been reported to the commission.

Production test.—The second proposed rule calls for a 24-hour production test on all wells in Districts 7-B, 9, and 10 of North Central Texas. These districts have been producing under the current allowables, and Baumel said the commission desires to prorate this underproduction among the other state districts.

The February allowable, by districts, as compared with January 13, follows:

	February	Change
Dist. 1 (Southwest)	36,214	+ 1,212
Dist. 2 (Southwest)	161,121	+ 13,999
Dist. 3 (Gulf Coast)	481,171	+ 31,575
Dist. 4 (Southwest)	250,421	+ 17,764
Dist. 5 (East Cent.)	49,350	+ 4,145
Dist. 6 (outside E. T.)	109,499	+ 8,634
Dist. 6 (East Texas)	271,456	— 2,423
Dist. 7-B (West Cent.)	96,293	+ 5,166
Dist. 7-C (West Cent.)	84,315	+ 5,622
Dist. 8 (West Texas)	900,575	+ 74,963
Dist. 9 (North Texas)	209,311	+ 9,654
Dist. 10 (Panhandle)	109,227	+ 12
Total	2,758,953	+170,323

The next state-wide proration hearing will be held in Fort Worth at the Hotel Texas on February 15.

Minimum Gas Price Asked

AUSTIN. — A law to establish a minimum price of 10 cents per M.c.f. on natural gas was proposed here last week by Rep. John E. Morrison, Jr., of Chillicothe. The price would be approximately double the average market price in Texas.

In the state comptroller's office, a spokesman estimated that a 10-cent minimum price would yield $16,000,000 to the state treasury. His calculations were based on 1949 gas production which yielded $10,000,000 in taxes. The state receives 5.2 per cent of the market price which currently is about 5 cents per M.c.f., the comptroller's figures indicate.

Reasons for filing the bill were cited by the legislator as increasing state revenue, prevention of waste, and protection of royalty and property owners.

Allocation of gas-production allowables on a state-wide basis would be provided in a bill also filed by Morrison. He said that allowables now are based on individual gas pools creating "discriminatory and selective purchasing of natural gas."

A three-member commission to regulate liquefied petroleum gases would be set up in a bill submitted by Rep. Bill Fly of Victoria.

New Recovery Technique

Method which utilizes carbon dioxide may be of potential importance in obtaining more oil from exhausted fields

George Weber

NEW YORK.—Carbon dioxide, the gas that puts zip in soft drinks, may bring new life to old oil fields.

An entirely new technique in oil recovery, based on a fundamental discovery involving the chemistry of carbon dioxide, has been developed by a newly formed firm, Oil Recovery Corp., and christened the Orco process.

By using a new approach to the old problem of increasing the ultimate recovery of oil from underground reservoirs, the Orco process is said to show promise of great potential importance in obtaining a "third crop" of oil from fields exhausted by previously known methods of primary and secondary recovery.

Further studies may show that the process has some applications in primary production methods, possibly with heavy crudes and tar sands.

The method is not yet ready for general use by the industry, but it has been tested in the field and further experiments are under way.

The process does not use expanding carbon dioxide gas to repressure the field, but makes use of a hitherto unknown property of the gas to free crude oil from the reservoir formation.

High recovery.—Core studies to date indicate that successful commercial application of the technique will reduce the fraction of irrecoverable oil to a new low of 10 per cent of pore space. This would amount to the recovery of two-thirds of the oil now left in the formation in some depleted fields.

The process employs carbon dioxide in water solution which is injected to the oil-bearing formation in input wells. The carbonated water is combined with an unrevealed, efficient adjuvant or "helper" which is said to be abundant and inexpensive. Under operating methods as presently developed, the carbonated water "modifies the condition of many oil sands so that the oil is more readily recoverable than by present waterflood procedures."

Secret development. — Investigation and development of the new discovery has been actively pursued in close secrecy since 1947. At the present stage of the project, the developers state that they have proved that the process will be commercially applicable, but that the full extent and range of its adaptation to oil recovery and other possible ends will be known only after further laboratory and field studies.

While the principals involved decline to discuss the technical aspects of the process, it was revealed that they were first inspired to initiate laboratory studies by the fact that they had knowledge of hitherto unknown chemical reactions between carbon dioxide and hydrocarbons.

This reveals the process as one involving some chemical conversion of oil in formation which promotes its movement through permeable media. It thus appears to go an important step further than the conventional physical displacement of the repressuring and flooding methods now conventionally used in obtaining recovery of oil.

Already tested.—While it was originally believed that corrosion might prove to be a hazard, it has been found not to be a serious problem. Further, field tests have proved that most of the carbon dioxide can be recovered and recycled, indicating that the process is relatively inexpensive.

In the period of development, the process company has consulted with numerous oil-company engineers and consultants with sufficient background in practice and theory to rate them as experts. They quote these engineers as expressing the opinion that the process promises both an increase in recoverable crude oil and a lowering of recovery costs. Paul D. Torrey of Houston has been retained as a special consultant on the program.

History.—The basic discovery leading to the Orco process was made several years ago by James W. Martin, who has been engaged for many years as a consulting engineer. A graduate of the University of Virginia, Martin was associated in the past with the Du Pont interests and with the old Dry Ice Corp. He has made a lifetime study of carbon dioxide chemistry and has devoted more than 25 years of intensive work to that subject.

After patent applications were filed on the basic discovery, a study was undertaken to determine its most promising commercial application. A wide range of fields was considered before the recovery of petroleum from underground reservoirs was selected for primary attention. The Montclair Research Corp. and Ellis-Foster Co. of Montclair, N. J., were retained to initiate the research work. A very long series of tests on oil in unconsolidated sands was conducted.

The promise which these first tests showed led to the next step in the study—the confirmatory testing of actual oil-bearing formations. That work is being done at the core-analysis laboratories of Earlougher Engineering Co. in Tulsa. The successful application of the process on an unrevealed number of cores, understood to exceed 1,000, proved so encouraging that Oil Recovery Corp., 405 Lexington Avenue, New York, was organized to supervise further development.

Results.—Under the controlled conditions of the process as applied to cores taken from Mid-Continent formations, the following representative recoveries were obtained:

Well	Residual oil economically recoverable by present methods	Residual oil after Orco process applied
	(Percentages of pore volume)	
A-O	22	7
A-4	19	7
A-5	22	7.5
R-M	22	9
R-G	23	10

Cores taken from wells in the Pennsylvania Grade area, when similarly processed, showed oil residuals as low as those listed above. To date, only Pennsylvanian and Mid-Continent cores have been studied, representing a variety of sediment types. Over 75 per cent of the cores have been of oil-bearing sandstone, but successful results are also reported from tests on dolomites and oolitic and fractured limestones.

Field trials.—The next stage in the project was a field pilot test. The Allegheny field located in the Penn Grade area near Bolivar, N. Y., was selected as an extreme case. This marginal, watered-out field had yielded nearly all of the oil estimated to be recoverable by waterflood methods. In cooperation with owners of the process, Bradley Producing Co. of Wellsville, N. Y., began the initial field test of the new technique on a single five-spot pattern in the field 18 months ago. Detailed results of the operation to date are not revealed, but the company states that the test has recovered more oil than would have been possible by any other known method.

This month a second field test of the process is being started in Oklahoma. A major oil-producing company will investigate the application of the process on a more extensive five-spot pattern in a marginal field which was approaching abandonment after extensive water-flood operations.

Meanwhile, laboratory work has continued, to develop improvements and increased commercial application

of the process, according to Orco representatives. They state that it appears that the problems of practical field application are being satisfactorily solved. However, the process is not expected to be ready for general use for at least another year. At that time the owners intend to make it available to the industry on a reasonable fee and license basis. Until then, presumably, few technical details of the process will be revealed publicly.

Complex reaction.—The chemical CO_2 reaction or reactions whose discovery led to the process are said to be complex in nature, and cannot be explained simply. It is known, however, that the use of anerobic bacteria is not involved. It may be surmised that the reaction in some manner affects oil viscosity or preferential wetting, or a combination of these and other changes in the characteristics of both hydrocarbons and formation substances.

The agent used with carbonated water is referred to as an "adjuvant," a term used in medical science to define a substance which assists or heightens the action of a drug or remedy. In this respect it is not known whether the adjuvant acts as a catalyst or whether it enters into the reaction.

Process representatives are careful to point out that the process does not utilize carbon dioxide as a medium for physically repressuring a reservoir, but that its commercial use arises from a chemical action of the common compound. This favorable reaction takes place, they say, under temperature and pressure conditions normal to most water-flood secondary-recovery operations. The Orco process bears no relation to previous unsuccessful efforts by others to employ CO_2 in oil recovery, it is stated.

Potential uses. — The original commercial application will undoubtedly be directed to the recovery of oil remaining in marginal fields, down to the 10 per cent of total pore space anticipated. Possibly the next application will be made in conjunction with water-flood projects either in the initial stage or where such operations are already under way. A third application is indicated as a supplement to primary production methods.

By inference, the process may show promise of possible application to the recovery of hydrocarbons from oil shales and tar sands. These avenues of approach are understood to have been considered when the search began for commercial adaptation of the discovery. Further, there is a hint of the possibility of applying the chemical reaction in refining to the conversion of produced crude or heavy crude fractions.

Backers. — Oil Recovery Corp. is backed by representatives of New York financial and real-estate companies who have other interests in the petroleum industry. Directors of the corporation are Francis Kernan of White, Weld & Co.; B. C. Schmidt and J. K. Schemmer of J. H. Whitney & Co.; Henry Sears and Charles E. Saltzman of Henry Sears & Co.; William Zeckendorf of Webb & Knapp, Inc.; and James A. Bentley, management consultant. Schmidt is president of the corporation; Bentley as vice president and general manager, is acting head; and Schemmer is secretary-treasurer. At this stage of development, process is understood to have cost an estimated $500,000.

Radioisotopes

Widespread uses in industry and scientific research reviewed at symposium by New York Section of A.C.S.

George Weber

NEW YORK.—The widespread uses of radioisotopes in industry and scientific research were reviewed last week at a symposium conducted by the American Chemical Society's New York Section. The program, arranged under the direction of John Kotrady of The Texas Co., was comprised of six papers dealing with many aspects of the new techniques which have been developed in the past 4½ years.

The leading position of the petroleum industry in adapting these new tools to both research and commercial application was recognized by the scheduling of a complete paper on that subject alone. Other discussions concerned the employment of radioisotopes in organic chemistry and biochemistry, and the possibility of recovering and using fission products now considered as radioactive wastes.

Dr. Paul Aebersold, chief of the Isotopes Division of the United States Atomic Energy Commission, Oak Ridge, Tenn., chairman of the two sessions of the symposium, traced the growing demand for the new class of research and industrial tools.

Petroleum uses.—Dr. Paul H. Emmett, Senior Fellow at Mellon Institute of Industrial Research, University of Pittsburgh, reviewed all known uses of radioisotopes by the petroleum industry. His comprehensive report covered applications in three major fields: chemical research, petroleum exploration, and engine wear, lubrication, fuel, and miscellaneous uses.

In his work with the Petroleum Refining Fellowship in charge of fundamental research on the mechanism of catalytic reactions, Dr. Emmett was well qualified to discuss the chemical research applications of isotopes. He listed hydrogen and tritium as finding use in the study of isomerization, polymerization, alkylation, and cracking of hydrocarbons by inorganic acids, by $AlCl_3$, and by commercial cracking catalysts.

Radioactive carbon has been used in determining the mechanism of dehydrogenation of butane and butene to form butadiene over standard dehydrogenation catalysts. Carbon 14, one of the most widely used research isotopes, has revealed new information on the mechanism of the Fischer-Tropsch synthetic fuels process.

Practical applications.—In the exploration and production phases of isotope application, he cited the well-known radioactive well-logging practices, the detection of water breakthrough in water-flood operations, and the use of Iodine 131 in tracing the movement of oil through porous media. He referred to the investigations of the presence of radioactive materials in air and gas found in the subsoil near asphaltic deposits, and touched on the possible influence of radioactivity on original formation of petroleum.

The spectacular acceleration of engine wear studies wherein extremely minute quantities of iron from "hot" piston rings are quickly detected in lubricating oils, was discussed. Efficiency studies of high-pressure lubrication systems, measuring the distribution on bearings of greases containing radioactive elements, were described.

The well-known uses of radioactive pipe-line scrapers, and the tracing of product interfaces in pipe-line operation by the addition of oil-soluble, radioactive barium were cited as examples of straight operating applications. The measurement of emission energy in determining degrees of corrosion and thickness of vessel walls was reviewed.

Ash study.—In the study of fuels, the use of radioactive inorganic components in fuel oils now permits a more accurate study of ash formation in the measurement of stack losses of volatilized fly ash. New methods for studying the operation of fractionation columns are now possible, utilizing tagged hydrocarbon compounds in mixed-feed streams and tracing their movement and degree of concentration throughout the column. Another fundamental study, the determination of the solubility of water in various hydrocarbons, is now greatly facilitated by the use of water comprising radioactive hydrogen.

On the basis of what has been accomplished in less than 5 years by members of the petroleum industry, the conservative prediction was that radioisotopes will prove to be one of the most valuable classes of research tools employed in the future improvement of exploratory, drilling, production, and refining techniques.

Crude-Supply Problem

Proposed pipe lines from Texas to California promote talk as to whether outside crude is actually needed

D. H. Stormont

LOS ANGELES.—With two groups seeking to obtain permits from the Petroleum Administration for Defense for the necessary steel to build large crude lines from West Texas to California, it follows that the pending action is causing discussions among California operators as to the need for outside crude supplies.

As a national-defense measure, the general feeling is that such a line may be needed; that California would be hard pressed to supply an all-out war effort in the Pacific. But, some question, would it not require much less steel to import the oil from Canada? In a total war would not the demand east of the Rockies be such that all of West Texas' crude would be needed there? If the Texas-California line is built, would not a line from Canada to the Middle West also be needed to replace the crude shipped to the West Coast?

Short of total war the consensus is that no outside crude supplies are needed for normal peacetime—or current "half-war"—conditions. But, it is almost as generally conceded, it will probably be only a few years before such a carrier will be needed.

Two lines.—The proposed two lines are those of Progress Co., Los Angeles, and West Coast Pipe Line Co., Dallas. The former would build a 24-in. crude line and a paralleling 10¾-in. products line. The Texas group would build a 22-in. line. Both would terminate in the Los Angeles region.

Small California producers naturally are loath to see 200,000 to 250,000 bbl. of light crude oil daily brought into the West Coast area—under almost any conditions. They fear it will result in having to shut in some of their heavy-crude wells. The major companies, all of which have production in West Texas or have sister companies there, take a broader view.

Record output.—As one large company head pointed out, in December the state's fields supplied the normal West Coast demand, about 125,000 bbl. to the military, and still were able to add about 20,000 bbl. daily to storage. Production of 963,500 bbl. daily was a record high. While California's discovery record has been none too good for the past 12 years, he believed this level could be maintained for at least the next 4 or 5 years.

If total war comes, this official believes about 50,000 bbl. additional oil could be produced daily through stepping up the output of many wells just a little over the present recommended rate—say 10 bbl. more. Then there is the Elk Hills Naval Reserve. Currently this field is producing only about 6,500 bbl. daily whereas it is believed it can easily produce 80,000 bbl. daily.

Another point being discussed is price. West Texas crude of comparable gravities already carries a higher posting than California oil at any distance from a refining center. When transportation charges are added it would be materially higher.

Still another point is what would be done with the crude after it arrived in the Los Angeles area? All plants there are operating at full capacity except for some small obsolete ones. Thus in addition to the large amount of steel which would be required for a line, would not 200,000 bbl. of new refining capacity also have to be added?

Canadian line.—Those who claim that a line to the Seattle-Portland area from Canada's new flush fields is the answer, point out how much less steel would be required. Another point in its favor, they state, is that the Pacific Northwest area now is principally being supplied by tankers from Los Angeles refineries and that this long haul would be eliminated. The demand, approximately 250,000 bbl. daily alone in Washington, Oregon, and Idaho, they claim is sufficient to justify economically a large line into the area from Canada. Then with a crude supply established, the extra West Coast refining capacity could be erected in that area.

Smog Research

Oil industry, indicted as cause, to continue study

LOS ANGELES.—The California oil-refining industry, which in recent months has been more or less given a clean bill of health by control authorities, again has been indicted as a major cause of Los Angeles' smog problem.

This time the charge is twofold: First, vapor losses from gasoline-storage tanks and evaporation during delivery of gasoline via truck and pump; and second, the huge volumes of unburned gasoline vapors from the exhausts of automobiles and trucks.

Two years ago refineries in the Los Angeles Harbor area were accused of being the major contributor to the visible bluish smog which rolled over the area during periods of temperature inversion. Then the emphasis was on sulfur dioxide as being the element which caused eye smarting and crop damage.

At a cost of several million dollars for the installation of equipment to remove all sulfur dioxide from their waste gases, the refineries have virtually eliminated this source. The benefits of the program were felt during the past year when there were fewer onsets of visible smog. Likewise gas-testing equipment of the Los Angeles County Air Pollution Control District showed a marked reduction of SO_2 in the atmosphere.

But, the eye-smarting and crop-damaging attacks have continued. Likewise so have the efforts of the control group to pin down both the cause and source of the smog attacks.

Important factor.—Last week its director, G. P. Larson, said tests already have shown that unburned gasoline products from the exhausts of automobiles are an important factor. Tests on gasoline storage-tank losses and other vapor losses are incomplete but evidence has been obtained which also points to raw gasoline, he added.

These findings, made by control-district chemists as well as independent consultants, tended to place most of the blame on unsaturated hydrocarbons. These, while harmless in themselves, they believe may react with other elements and contaminants in the atmosphere to form eye-burning compounds.

ESA Approves Price Hike

WASHINGTON.—The request by the Economic Stabilization Agency that California oil companies roll back crude prices has been withdrawn, it was disclosed last week.

Orville D. Judd, ESA oil consultant, rescinded the price rollback for West Coast crude in a letter to major oil companies, including Union Oil Co., Tide Water Associated Oil Co., The Texas Co., and Standard Oil Co. of California. Union started the price hike with a 25-cent per barrel increase last October which was taken up by other buyers.

No detailed reasons were given in the letter for withdrawing the request, but Judd said his staff had considered price data and other information submitted by the companies.

Industry officials think the reason is fear by ESA that insistence on lower prices would cut West Coast crude-oil production.

Conservation Bill

Efforts to obtain state legislation are deferred

LOS ANGELES.—Efforts to have a state conservation measure enacted have been deferred until the present emergency is over.

This decision was reached last week by directors of the Oil Producers Agency of California, the group which had planned to sponsor such a bill during the current session of the state legislature. The change in plans was because of Gov. Earl Warren's request that legislation other than that directly related to the defense effort, or of a definite emergency nature, be postponed until normal conditions have been reestablished.

In deciding to defer its plans for a conservation statute, the agency stated that it has not abandoned a principle which it believes to be sound and in the best interests of the state and the oil industry. It still believes the ultimate solution lies in the adoption of a just and workable state conservation program.

Gasoline tax.—While this battle has been thus postponed, another, involving a 2-cent increase in the state gasoline tax, was taking form.

State Sen. Randolph Collier, coauthor of the 1947 Collier-Burns superhighway bill which increased the state tax from 3 to 4½ cents, plans to submit such a recommendation to the interim senate committee on highways which he heads. The increase would be necessary for carrying out his program for multilaning all of California's major highways. To do so will take $1,400,000,000 he said.

Should the proposal be approved by the committee and the legislature, which has been asked by Governor Warren to curb nonessential construction, final approval would be necessary by California voters. The latter would be required since the program would be underwritten by a billion-dollar bond issue, to be repaid over a 20-year period by the extra 2-cent tax. The other $400,000,000 would come from regular state highway revenues, the plan proposes.

Search for Oil Accelerated

SAN FRANCISCO.—Standard Oil Co. of California and its domestic subsidiaries have earmarked $41,500,000 for exploration work and oil-field development during the first 6 months of 1951.

T. S. Petersen, president, said expenditures will be 14 per cent higher for these purposes than for last year in accordance with the company's effort to meet increased civilian and military petroleum demands.

If present demands continue, Petersen said, the companies will spend approximately $80,000,000 on exploration and development in 1951. Finding new oil is particularly important in California, he said, because the state has been providing better than 50 per cent of the oil being supplied from the United States to the military services due to its geographic position.

GULF COAST

Tidelands Plan

Bill is introduced to let exploration resume

WASHINGTON. — Legislation permitting resumption of exploration in the tidelands area off the coasts of Texas and Louisiana pending determination by Congress whether it will reverse the decisions of the Supreme Court was introduced last week by Sens. Joseph C. O'Mahoney of Wyoming and Clinton P. Anderson of New Mexico.

Framed along the lines of legislation sponsored by O'Mahoney last year, the measure would recognize the validity of leases issued by the states prior to December 21, 1948, which were in force and effect last June 5, the date of the Texas-Louisiana decisions, but with a provision for their termination within 5 years in the absence of production or drilling operations.

The major objective of the measure, however, is the opening up of exploratory operations, and to that end the Secretary of the Interior is authorized to issue leases on areas not now under lease, by competitive bidding, for a period of 5 years and as long thereafter as oil and gas is produced, at a royalty of not less than 12½ per cent.

Recognizing the controversy over the inclusion of certain areas which are claimed by both the state and federal governments, the secretary would be authorized to make special agreements with the states or their lessees for operations and the payment and handling of rents and royalties.

Special fund. — All funds accruing from bonuses, rents, and royalties on lands not in dispute would be deposited in a special fund in the Treasury, out of which the states would get 37½ per cent from areas within the 3-mile boundary. All revenues from the coastal shelf beyond the 3-mile limit would go to the federal Government.

The resolution provides that in view of the national emergency the President may set aside any of the unleased lands of the Continental Shelf for the use of the Government, and in time of war the federal Government would be given first call to purchase oil and gas from the underwater reserves at market price. It is also provided that during war or national emergency, operations under any lease may be suspended or any lease terminated upon the recommendation of the Secretary of Defense, but the lessee shall be compensated according to law.

"It is of the utmost importance to the nation that in the present international emergency authority be speedily granted to the Government to administer these lands," O'Mahoney told the Senate.

Action Plan Adopted

AUSTIN.—The Texas Property Defense Association last week unanimously adopted a joint plan of action submitted by Atty.-Gen. Price Daniel and Bascom Giles, land commissioner, on tidelands strategy.

Guy C. Jackson of Anahuac, who presided at the association meeting attended by representatives of 14 state organizations, named a central committee to carry on Texas' unified fight for congressional action on the tidelands.

The Giles-Daniel proposal would use every means possible to bring about congressional restoration of Texas' full title to the tidelands; obtain for the states a fair and equitable share of the revenue that may be obtained from mineral operations out to the 27-mile limit of the Continental Shelf (Giles thought 50 per cent would be a minimum share); urge the prompt enactment of interim legislation, such as an amended version of the O'Mahoney Bill, to permit continued development of oil resources in the Continental Shelf and permit the state and its permanent school fund to receive a fair share of the revenue; and encourage other states to join in the fight to preserve their rights to their submerged lands and natural resources.

Dividing Line Is Question

BATON ROUGE—What is the dividing line for the area of state and federal control of the coastal waters?

This was the big question that has been uppermost in the minds of state officials here since the recent tidelands decision handed down by the United States Supreme Court.

Last week, Gov. Earl Long attempted to find an answer to that question and ordered a survey to determine what lands Louisiana can claim under the federal decision.

In a letter to J. Lester White, director of the State Department of Public Works, the governor asserted that "oil, gas, and mineral development along the Louisiana coast is now at a practical standstill.

"It is imperative that the State of Louisiana adopt a line along the coast of the state which . . . appears to separate inland waters from those lying seaward, within the purview and scope of the language used by the courts," the governor wrote.

World Crude Production

Principal oil areas maintained record high rate during November without appreciable change from October

Dahl M. Duff

THE world's principal oil areas maintained record high rates of production during November without appreciable change from the previous month.

The November total of 11,260,000 bbl. daily for all areas represented an almost negligible increase of 0.2 per cent. It was the first month since early last spring that world production has not shown a significant gain.

The increase from October to November amounted to 22,800 bbl. daily. United States output fell back slightly from its record high level of 5,900,000 bbl. daily in October. Foreign production as a whole was up 27,800 bbl. daily, due mainly to increases in Canada, Mexico, Iran, and Kuwait.

Slight change.—Although the overall changes in production from October to November were slight by comparison with the sharp rises in previous months, the latest increase nevertheless lifted world production, the total for the Middle East area, and the output of several individual countries to new record highs.

In the Middle East, the slight increase of about 8,000 bbl. daily carried the total for that area for the first time above the 1,900,000-bbl.-daily mark. Individual countries establishing new high production levels in November were Canada, Kuwait, Colombia, and Germany.

Venezuelan production was virtually unchanged from October to November. Official figures showed an increase of only about 200 bbl. daily over the 1,611,500 bbl. daily produced in October.

Compared with a year ago, November production in the world's oil areas showed sharp gains ranging up to 30.2 per cent in the Middle East. Foreign production in November, exclusive of Russia and eastern Europe, was 21.2 per cent above November 1949. United States production was 13.2 per cent above that of a year earlier, and world production as a whole, including the estimated Communist output, was 15.5 per cent above November of the previous year.

Canada.—Canadian production in November amounted to nearly 100,000 bbl. daily, up about 12,000 bbl. daily from the previous month. This reflected the new outlet for Alberta production which was provided when the Interprovincial pipe line from Edmonton to Superior, Wis., went into operation.

Mexico's output in November showed the result of the continued development effort taking place in that country. The upward trend of

WORLD CRUDE-OIL PRODUCTION
(Thousands of barrels daily)

Country	Nov. 1950	Oct. 1950	Nov. 1949
Western Hemisphere:			
Argentina	64.0	63.6	68.4
Bolivia	1.7	1.7	2.3
Brazil	0.8	0.8	0.4
Canada	99.7	88.0	62.4
Chile	1.7	1.7	0.5
Colombia	99.0	98.5	77.6
Cuba	0.2	0.2	0.6
Ecuador	7.5	7.1	7.2
Mexico	220.0	213.0	176.0
Peru	42.9	42.1	41.0
Trinidad	57.0	57.1	56.5
Venezuela	1,611.7	1,611.5	1,439.2
Total	2,206.2	2,185.3	1,932.1
Europe and Africa:			
France	4.2	4.2	1.1
French Morocco	0.9	0.9	0.5
Germany	23.1	22.9	17.8
Italy	0.2	0.2	0.2
Netherlands	12.6	12.4	13.1
Egypt	45.6	46.1	42.1
United Kingdom	0.9	0.9	0.9
Total	87.5	87.6	75.7
Middle East:			
Bahrein	29.7	29.8	30.2
Iran	657.4	625.3	591.6
Iraq	156.2	167.6	106.4
Kuwait	396.7	387.4	276.4
Qatar	40.0	39.2	.....
Saudi Arabia	620.1	643.1	454.5
Turkey	0.8	0.8	0.6
Total	1,900.9	1,893.2	1,459.7
Other Asia:			
British Borneo	88.0	88.0	72.9
Burma	2.0	2.0	0.6
China	2.0	2.0	1.5
India	5.2	5.2	5.3
Indonesia	150.0	150.0	118.6
Japan	6.0	6.3	4.2
New Guinea	4.8	4.9	4.7
Pakistan	3.7	4.0	2.5
Total	261.7	262.4	210.3
Total, foreign less Russia and E. Europe	4,456.3	4,428.5	3,677.8
Estimated Russia and Eastern Europe:			
Austria	25.0	25.0	20.0
Romania	85.0	85.0	90.0
Russia	775.0	775.0	730.0
Other E. Europe	24.1	24.1	19.0
Total	909.1	909.1	859.0
Total, foreign	5,365.4	5,337.6	4,536.8
United States	5,895.0	5,900.0	5,209.5
World total	11,260.4	11,237.6	9,746.3

Figures are from reliable reports in the industry or from official government sources. Data for Russia and eastern Europe are based on competent estimates; no authentic information is available month-to-month on production in these areas.

Mexican production was pointed out recently by Antonio J. Bermudez, director-general of Petroleos Mexicanos, when he announced the 183,398 bbl. daily on January 1, 1950, had been raised to 228,000 bbl. daily in December.

Colombia.—Colombia's crude production of 99,000 bbl. daily in November consisted of 37,491 bbl. daily from De Mares, 25,385 bbl. daily from Barco, 30,778 bbl. daily from Yondo, 1,258 bbl. daily from Contagallo, 2,566 bbl. daily from Dificil, and 1,531 bbl. daily from Velasquez. During November, however, Colombia yielded its place as the fourth largest producer in the Western Hemisphere—after United States, Venezuela, and Mexico—to Canada.

Production in Peru showed a slight increase over the previous month. The November total of 1,286,964 bbl. was exclusive of 3,042 bbl. daily of natural gasoline and other light fractions.

Venezuela.—Of Venezuela's November production of 1,611,748 bbl. daily, 1,135,134 bbl. daily was from western Venezuela, and 476,614 bbl. daily from the eastern part of the country. In October, production from these two sections was 1,132,898 and 478,645 bbl. daily respectively.

Of interest is the fact that Socony-Vacuum Oil Co. of Venezuela has shown particularly sharp gains in its production in recent months. This company in the week ended November 20 had an all-time high of 45,495 bbl. daily. In the same week, the three major Venezuelan producers had an operated production as follows: Creole, 688,342 bbl. daily; Mene Grande, 263,808 bbl. daily; and Shell, 532,351 bbl. daily.

PRODUCTION IN VENEZUELA BY MAJOR FIELDS
(10,000 bbl. daily or more)

Field—	November 1950	October 1950
Eastern Venezuela:		
Quiriquire	76,480	79,597
Oficina	51,161	53,175
Jusepin	25,854	24,800
Mulata	17,442	18,130
Pedernales	11,773	10,875
Nipa	40,970	41,334
Las Mercedes	20,599	19,461
Santa Barbara	17,057	17,672
Guico	11,603	11,442
Guara	61,869	60,277
Chimiri	55,589	53,251
Western Venezuela:		
Cabimas	33,361	84,214
Lagunillas	402,958	402,423
Tia Juana	170,974	163,683
La Paz	165,612	166,286
Bachaquero	138,683	135,692
Mene Grande	46,681	46,351
El Cubo	14,528	14,053
Mara	79,571	80,243
Boscan	14,052	16,327

Western Europe.—In western Europe, France's small production continued to show the result of the discovery early in 1950 of the new field at Lacq near Pau in the Basses Pyrenees. In late November, output of this field was about 360 tons daily. The operating company, Soc. des Petroles d'Acquitaine, has only an exploration permit for its Lacq wells, and output will be further increased as soon as the exploitation concession is granted. Other French production comes from Pechelbronn and Sultz in eastern France.

Official figures showed a total production in western Germany in November of 97,785 tons. On a daily average basis, this represented about 23,100 bbl., or slightly above the October figure. Of the total, 44,343 tons was from the Hanover district, 43,147 tons from Emsland, 9,801 tons from Schleswig-Holstein-Hamburg, and 494 tons from Baden. In comparison to the previous month, Emsland fields showed a decline because of the decision of the operators in the area to limit the production rate according to the critical gas-oil ratio.

Middle East.—In the Middle East, declines in production in Saudi Arabia and Iraq were more than offset by increases in the other two principal countries, Iran and Kuwait. Kuwait's production of about 397,000 bbl. daily was another of a succession of new highs which have been established by this country's output in recent months.

Russia.—Year-end reports announced by Russian industrial agencies gave further data on current production by the Soviets. Russia had set a somewhat modest goal of 35,400,000 tons (about 705,000 bbl. daily) for the end of its 5-year plan in 1950. The Russians had previously declared this goal was reached in the last quarter of 1949.

In 1950, according to a Russian statement, the production goal was exceeded by 2,200,000 tons. This indicates a production of around 37,600,000 tons or about 753,000 bbl. daily. This refers to annual output, and granting a continued upward trend, current production is estimated to be somewhat above this level.

TREND OVER THE LAST YEAR

	Western Hemisphere less U. S.	Middle East	Total foreign less Russia & E. Europe
1949—			
December	1,929.3	1,489.6	3,711.0
1950—			
January	1,946.5	1,491.4	3,733.4
February	1,820.6	1,366.6	3,689.4
March	1,900.4	1,607.4	3,812.9
April	1,968.2	1,639.5	3,918.2
May	1,775.4	1,752.0	3,847.4
June	2,098.2	1,811.5	4,229.6
July	2,073.2	1,808.3	4,202.6
August	2,097.8	1,839.5	4,273.6
September	2,146.1	1,803.7	4,297.1
October	2,185.3	1,893.2	4,428.5
November	2,206.2	1,900.9	4,456.3

MIDDLE EAST

Tapline Throughput

It reached 320,000 bbl. in one day during month

Paul Reed

THROUGHPUT of the Trans-Arabian Pipe Line Co. system rose to 320,000 bbl. in 1 day in the first half of January with all six pump stations on the Abqaiq-Sidon line in operation. During December 3,625,280 bbl. was shipped from Tapline's Sidon terminal. In the first 10 days of January, 2,883,000 bbl. was loaded in 15 tankers for European, United States, and Canadian ports. It happened that on the first day the Sidon terminal was put in operation early in December, 730,000 bbl. was loaded from storage tanks.

The total investment in the original Tapline Abqaiq-Sidon system is expected to be completely amortized in less than 3 years at full-load operation. Meanwhile 65 tankers are being released for other service.

Less than $230,000,000 is estimated as the cost of the entire 1,068-mile, 30-31-in. system from Abqaiq, Saudi Arabia, to Sidon, Lebanon, which has subsequently been divided between Trans-Arabian Pipe Line Co. and Arabian American Oil Co. However, the exact cost will not be completely determined until the end of this year.

Eastern section.—Arabian American Oil Co. bought at cost from Trans-Arabian Pipe Line Co. the eastern section from Abqaiq up to the Qaisumah station; this is now designated as part of the Aramco gathering system. At the beginning Aramco loaned Tapline money for construction. Aramco delivers crude oil into Tapline's six tanks at Qaisumah with capacity of 1,000,000 bbl.

The general plan is to have Aramco pump at a sufficient rate to keep these tanks about a third full. Now that operation is under way, the Qaisumah-Sidon section is owned and operated by Trans-Arabian Pipe Line Co. Tapline will supervise and overhaul mechanical equipment at Aramco's diesel centrifugal station at location No. 2. It has been agreed that no maintenance men will be established at that location. The No. 1 station at Abqaiq, equipped with two steam-turbine centrifugal units, will be entirely maintained by the Aramco staff.

"Sky hook."—The "sky hook," a 3-mile aerial tram for unloading Tapline ships offshore at Ras el Misha'ab, will be dismantled. Aramco will retain the Ras el Misha'ab base facilities for production operations and offshore drilling. An Aramco well is now being drilled 10 miles southeast of this base. *(The Oil and Gas Journal, January 18, 1951, page 42.)*

Tapline and Aramco pump stations are now being manned by Americans and Arabs. Eventually station personnel will include men of several

European and Middle East countries.

A. N. Horne, vice president and general manager of Trans-Arabian Pipe Line Co., who has been located at the Beirut, Lebanon, office during construction and early operation, is now vacationing in the United States.

Office moved.—Tapline's main office has been recently transferred from San Francisco to Beirut. However, Burt E. Hull, president, will continue to have his office in San Francisco. H. B. Britton is manager of the New York branch office where Preston P. Nibley, chief engineer, is located. Executives at Beirut, Lebanon, include: C. A. Swigart, vice president and chief operating officer; W. E. Locher, general manager; W. R. Chandler, assistant manager of operations; G. H. Gossens, assistant to the manager; D. T. Pinckney, general superintendent of Saudi Arabia division (this contains all four Tapline pump stations); H. B. Beckley, general superintendent of Trans-Jordan, Syria and Lebanon; Henry Carrington, superintendent of Sidon terminal; and A. C. Nelson, dispatcher.

Neutral Zone Test

Fourth venture reported to be below 7,000 ft.

THE fourth test drilled by American Independent Oil Co. and Pacific Western Oil Co. in the Kuwait-Saudi Arabian Neutral Zone is now reported to be below 7,000 ft.

The hole is the deepest yet drilled in the joint exploratory program of the two companies, which each hold an undivided half interest in the zone. At 7,000 ft., the well presumably is near the limit of the medium-capacity rig being used. Whether any indications of possible production have been found is not known.

The Neutral Zone is administered jointly by Kuwait and Saudi Arabia. Pacific Western holds the concession from Saudi Arabia, and American Independent, from Kuwait. The two companies on June 30, 1949, signed an agreement providing, among other things, for the completion of exploratory work necessary to determine the structural features of the zone, drilling four wells to a maximum depth of 5,000 ft. each, and their operation during the term of the agreement.

Pacific Western paid $750,000 as its share of expenses under the agreement, which is to terminate on completion of the four wells. A second agreement was entered into February 14, 1950, providing for seismograph and core drilling, expenses of which were to be shared equally.

First well.—The first well, Wafra 1, was spudded December 11, 1949, and completed as a dry hole at 5,020 ft. February 4, 1950. Wafra 2 was commenced 2¼ miles west on February 22 and suspended June 9 at a depth of 5,250 ft. A separate agreement between the two companies last June 23 provided for the drilling of Wafra 3 as an exploratory well but not as one of the four contemplated by the original agreement. The well presently drilling is understood to be located about 6 miles to the west of Wafra 3. All the wells are in the northern part of the 2,500-sq. mile zone.

Well Below 11,240 Ft.

The deep test of Kuwait Oil Co., Ltd., in Burghan field is now drilling ahead below 11,240 ft.

The well is regarded as the most significant exploratory venture now under way in the Persian Gulf area. It seeks to determine the possibilities of production below the present Middle Cretaceous sand from 3,500 to 4,800 ft. Testing is expected after total depth is reached.

As an additional point of interest, the hole is now approaching the Middle East depth record. This is presently held by Ratawi 1, which was drilled to 12,692 ft. about a year ago by Basrah Petroleum Co., Ltd. (Iraq Petroleum Co., Ltd.) west of Basrah in Iraq.

A few months ago, another Middle East deep test was abandoned as nonproductive in Bahrein. This deep exploratory test by Bahrein Petroleum Co., Ltd., went to about 11,700 ft. and encountered mechanical difficulties.

FAR EAST

Export Restrictions

Shipment of products to Far East to be tightened

RESTRICTIONS on the export of lubricating oils and other petroleum products to the Far East will be tightened up by the Office of International Trade next month to prevent supplies from reaching Communist China.

New regulations have been drafted which will apply to shipments of lubricating oils, motor fuel and gasoline, naphtha, kerosine, gas oil and distillate fuel oil, lubricating greases, petrolatum and petroleum jelly, microcrystalline wax, unmanufactured petroleum asphalt, asphalt manufactured and petroleum coke destined for Burma, Ceylon, Formosa, French Indochina, Hong Kong, India, Macao, Malay States, Netherlands East Indies (Indonesia), Pakistan, Philippine Islands, Singapore, or Thailand.

Information required.—Effective February 10, each applicant for a license to export any of the specified products to any of those countries will be required to give supplemental information regarding the ultimate consignee's current stocks of each product ordered by him from the applicant, the date on which the order was placed, the additional quantities of each product which the ultimate consignee expects to receive from other sources within 90 days from the date of the order, and the ultimate consignee's monthly rate of consumption, including resale of the commodities covered by his order.

On the basis of this detailed information, together with data previously available, it was explained, the OIT will be able to gage the supply situation in each of the affected far eastern countries with increased efficiency and accuracy.

The order is based on disclosures last year by a congressional committee that lubricating oils and other products had been secured by China even after the invasion of South Korea.

LATIN AMERICA

Gulf Sale

Mexican Gulf Oil Co. to be purchased by Pemex

GULF OIL CORP. and Petroleos Mexicanos have reached an agreement for the purchase by Pemex of the Gulf subsidiary, Mexican Gulf Oil Co.

A Gulf announcement confirmed reports of the agreement but said final details have not yet been concluded and no actual sales contract signed. The properties, with a production during 1950 of less than 1,300 bbl. daily, have not yielded any net return for a number of years, according to a Gulf official.

Reports from Mexico City said the Mexican Government oil organization would pay Gulf $2,350,000 for the properties. Included are two other subsidiaries, Hamilton Devine, Ltd., and American International Fuel & Petroleum Co. in Mexico.

Mexican Gulf was one of a group of companies not included in the 1938 expropriation order in Mexico. Pemex has been seeking for some time to acquire these various miscellaneous private holdings.

Mexican Gulf properties included in the proposed sale were reported to consist of 36,000 hectares (about 88,000 acres) of land in Tamaulipas, 1,000,000 bbl. of crude in 57 storage tanks in Tampico, 18 land concessions, producing wells, two short pipe lines in the Tampico area, one marine terminal in Tamos, Veracruz, and various other equipment. Forty per cent of the properties of Mexican Gulf were sold about 2 years ago.

(Additional International news will be found on page 412.)

Production Chief

Richard G. Lawton takes Washington post with PAD

RICHARD GRAY LAWTON, president of Lawton Oil Corp., Magnolia, Ark., has accepted the appointment as director of the production division of the Petroleum Administration for Defense.

A native of Colorado Springs, Colo., Lawton entered the industry as a member of a drilling crew in the Ranger, Tex., field following his graduation from the University of Oklahoma, where he majored in geology.

Later Lawton's work carried him into the Shreveport area, and it was there that he became a partner in McAlester Fuel Co., in charge of the company's new oil-production division.

McAlester oil interests, under the direction of Lawton, grew steadily from their beginning in Columbia County, Arkansas, until they extended through Arkansas, Louisiana, Texas, and into New Mexico. In 15 years the company grew to be one of the best-known independent producers in the Mid-Continent area.

In August 1950, Lawton gathered together his interests in the four states and placed them in a separate corporation, Lawton Oil Corp.

He is a past vice president and member of the executive committee of the Independent Petroleum Association of America, and a member of the Petroleum clubs of Magnolia, Shreveport, and Dallas.

A. J. Montgomery has been transferred to Oklahoma City by Allied Materials Corp. as manager of its combined exploration and production divisions.

Phillip H. Bohart, vice president of Gulf Oil Corp., has been elected to the board of directors of the National Bank of Tulsa.

Joe Zeppa, Delta Drilling Co., has been appointed vice president of Independent Petroleum Association of America for the Northeast Texas region. **O. C. Bailey,** Arkansas Oil and Gas Conservation Commission, was named by the association as a member of the executive committee, succeeding **R. G. Lawton,** president of Lawton Oil Corp., Magnolia, Ark., who has joined the Petroleum Administration for Defense in Washington, D. C. Zeppa fills a newly created post.

G. C. Roberts, South Texas district geologist for Great Lakes Carbon Corp. for the past 5 years, has joined Progress Petroleum, Inc., as West Texas district geologist and will open an office for the firm in Abilene, Tex.

Roberto Wills, for the last 2 years petroleum attache to the Colombian Consulate in New York, is returning to Colombia in February as a result of the closing of the oil office of the consulate by the Ministry of Mines and Petroleum.

Edwin K. Lucas, a 1949 graduate in geology from Michigan State College, East Lansing, has joined Roosevelt Oil & Refining Corp., at Mount Pleasant, as geological and land scout.

J. H. FORRESTER

J. H. Forrester, manager of Stanolind Oil & Gas Co.'s manufacturing department, has been named manager of the firm's central division, replacing **J. E. Swearingen,** division manager in Oklahoma City for the past year, who returns to Tulsa as executive assistant to **A. L. Solliday,** executive vice president. Forrester, who joined Stanolind in 1946, had previously been associate director of research and director of technical service for Standard Oil Co. (Ind.). As manager of Stanolind's manufacturing department he directed a plant-expansion program that saw the construction of seven new natural-gasoline and recycling plants in the 3-year period from 1948-50.

J. W. Denny, district superintendent with Continental Oil Co., has been transferred from Lance Creek, Wyo., to Casper.

O. O. McKenzie, formerly of Galesburg, Ill., has been appointed Nebraska division manager for Service Pipe Line Co., succeeding **W. S. Partner,** Scottsbluff, Neb., who retired. McKenzie joined the firm in 1925 and is now one of the firm's eight division managers.

J. H. Kinser, geologist, The California Co., will be exploration superintendent at the new district exploration offices for Colorado, Utah, and Arizona that have been opened in Grand Junction, Colo.

J. R. Polston, former general manager for Service Pipe Line Co., has been elected vice president of operations. **R. J. Andress,** former director in charge of traffic, was elected vice president in charge of traffic, and

J. R. POLSTON

R. J. ANDRESS

C. M. Scott, Jr., former assistant general manager, succeeded Polston as general manager. Polston joined the firm in 1922 when it was known as Sinclair Pipe Line Co. as a draftsman, and resigned in 1926 to join Marland Oil Co. and Arthur G. McKee Co. as a refinery process and design engineer. He returned in 1934, was named chief engineer, then assistant general manager in charge of construction. In 1947 he was elected to the board of directors, and in 1948 was named general manager. Andress, a transportation-law specialist, joined the firm in 1946, on separation from the Army, and was elected to the company's board of directors in 1948. Scott, a member of the board since 1946, joined the firm in 1916 as an engineer-draftsman. During his period of service he has served as the firm's assistant chief engineer and chief engineer.

Dr. Daniel J. Jones, formerly with Phillips Petroleum Co. research laboratories at Bartlesville, Okla., has joined the University of Utah staff.

Edwin M. Ikard has been named plant manager at Farmington, N. M., for Southern Union Gas Co., succeeding **Davis Butler,** who has been named town plant manager at Durango, Colo.

PERSONALS

E. S. Rugg, engineer with The Texas Co., has been transferred from Calpet, Wyo., to Sundown, Tex.

G. H. Thompson, Jr., geologist with Shell Oil Co., has been transferred from the Kansas division to the Denver district.

Ian Macartney and **John R. Dyer,** geologists with Stanolind Oil & Gas Co., have been transferred to the division office in Casper. Macartney was formerly at Calgary, Alta., Canada, and Dyer at Albuquerque.

Max E. Ferrell, senior geologist for Carter Oil Co. at Buffalo, Wyo., has been transferred to Casper where he is head of the new district office there.

D. E. Flickinger, party chief for Continental Oil Co. at Harvey, N. D., has been transferred to Artesia, N. M.

George A. Ford, of the Farmington, N. M., office of Delhi Oil Corp., has been in Calgary, Alta., Canada, to establish a Delhi office.

John F. Finn, field engineer at Little Buffalo Basin, Wyo., has been named field engineer at Midwest, Wyo., succeeding **F. T. Chambers,** who has been transferred to Rangely, Colo. **Harvey L. Howard,** formerly located at Rangely, succeeds Finn at Thermopolis, Wyo., as field engineer.

Stanley Spaulding, formerly land man with Tide Water Associated Oil Co., has resigned to join **Walter Davis,** independent operator of Casper.

Charles M. Jameson, independent operator and driller, has moved from Worland, Wyo., to Craig, Colo.

Booth B. Strange, a vice president of Western Geophysical Co. of America, will be manager of the new division office moved to Shreveport from Natchez, Miss. The office, moved for more convenience to the company's Mid-Continent, Gulf Coast and eastern operations, will also be headquarters for Western's gravity-meter operations under the supervision of **J. G. Ferguson. J. P. Jones,** recently of Tulsa, will be in charge of gravity-meter construction and maintenance. **Aart de Jong** will be seismograph supervisor.

Ralph R. Matthews, formerly executive vice president of Battenfeld Grease & Oil Corp., has been named executive secretary of the Independent Oil Compounders Association.

A.I.M.E. OFFICERS.—Newly elected officers and directors of the Delta Section, American Institute of Mining and Metallurgical Engineers, New Orleans. Seated, left to right: Raymond B. Kelly, Jr., Richardson-Bass, vice chairman; H. M. Krause, Jr., Humble Oil & Refining Co., chairman; and J. E. R. Sheeler, Shell Oil Co., vice chairman. Standing, left to right: J. H. Homer, Humble, secretary; J. H. Rambin, Jr., The Texas Co., director; A. L. Vitter, The California Co., treasurer; and E. N. Van Duzee, Shell Oil Co., director. Also elected were: Murray Hawkins, Louisiana State University, director; and H. C. Loehr, Jr., Baroid Sales Division, journal secretary. Fred Simmons, Jr., Louisiana Land & Exploration Co., past chairman, automatically became a director

Rexford S. Blazer, president of Allied Oil Co., Cleveland, and Frontier Oil Refining Co., Buffalo, both subsidiaries of Ashland Oil & Refining

J. H. MARSHALL

R. S. BLAZER

Co., was elected president of Ashland, succeeding **J. Howard Marshall,** who was elected vice chairman of the board as an operating executive directly under the chairman. Marshall will be relieved of detailed administrative duties to give more time for general executive activities and will continue in direct charge of crude-oil operations. **Paul G. Blazer** was reelected chairman of the board, and **James L. Martin,** a director for over 30 years, was elected chairman of the executive committee, a new post.

R. D. Menefee, geologist at Jackson, Miss., for Shell Oil Co., is being transferred to the Shreveport office.

P. E. Foote has been named president of Petrolane, Ltd., Long Beach, Calif., succeeding the late Charles E. McCartney, founder of the organization. Foote was associated with General Petroleum Corp. for 24 years, leaving that firm in 1943 to join the Petrolane staff. Other officers of the firm are: **Lowell Stanley,** vice president and treasurer; **Edwin D. Davies,** executive vice president and general manager; and **Frank M. Taylor,** secretary.

S. M. Hough has been transferred from Hutchinson to Moundridge, Kans., by Continental Oil Co. as district foreman of the East Kansas district, succeeding **W. J. Novak.** Novak is retiring after 27 years of continuous service.

J. A. Bates, West Texas district superintendent of the gasoline department for Lone Star Gas Co., will direct operations of the newly purchased gasoline plant and pressure-maintenance plant at Stephens County, Texas. **Joe F. Francis,** formerly superintendent at the Brooks plant, Stephens County, has been named superintendent of the Stephens plant. **Jack Fizer,** construction foreman at the Brooks plant, replaces Francis as superintendent there. **R. C. Crawford,** assistant superintendent at the

PERSONALS

Ranger, Tex., central fractioning plant, has been transferred to the Pueblo, Eastland County, Texas, plant as assistant superintendent. **Alton Redwine,** former lab tester at Ranger, succeeds Crawford as assistant superintendent.

Bob Gilchrist, president of Gilchrist Drilling Co., has moved his offices from Eastland to Abilene, Tex.

Rex W. Woods has returned from Caracas, Venezuela, to open offices in Tulsa as a consulting petroleum engineer. In Venezuela, Woods was with Creole Petroleum Corp. for 5 years, in charge of reservoir engineering. Previously he had been with Petroleos Mexicanos at Mexico City for 2 years, and Gulf Oil Corp. in the Mid-Continent area. He graduated in petroleum engineering from Pennsylvania State College in 1930, and was on the faculty there after several years' work in the Mid-Continent and Bradford fields.

Preston G. Rennie, engineer for Sohio Petroleum Co. at Pauls Valley, Okla., has been transferred to Oklahoma City as reservoir engineer.

James P. Murphy, associate director for production for the exploration and production - research division for Shell Oil Co. at Houston, has been transferred to the Pacific Coast regional staff. Murphy joined Shell at Los Angeles in 1937 and in 1940 was made production engineer for the coastal division at Ventura, Calif. In 1941 he became senior production engineer for activities west of the Rockies, holding this position until he entered the Navy in 1942. In May 1946 he was named associate director of exploration and production research at Houston.

Wilbur E. McMurty, assistant district geologist for Phillips Petroleum Co. at Shawnee, Okla., has been transferred to Oklahoma City in the same capacity.

Gene C. Van Dyke, formerly geologist with Kerr-McGee Oil Industries, Inc., at Oklahoma City, has joined **S. D. Johnson,** oil operator at Wichita Falls, Tex., as chief geologist.

Ralph Beeker has been transferred from New Orleans to Corpus Christi as district geologist for Pure Oil Co., succeeding **Norman Thomas,** who has been transferred to the firm's Chicago office to do special work in stratigraphy.

O. P. Brown, geologist, and formerly with Shell Oil Co., will be in charge of the new offices opened by Wilshire Oil Co. in Denver.

Malcolm C. McPhail, junior petroleum engineer for Stanolind Oil & Gas Co. at Levelland, Tex., has been transferred to Hobbs, N. M.

Wayne Rives, of The Oil and Gas Journal, has been elected president of the Houston chapter of Nomads, and will be officially installed at the annual dinner dance on January 27. Other officers elected include: **Herschel Wood,** Lebanon Steel Foundry, vice president; **E. F. Baldwin,** Hughes Tool Co., secretary-treasurer; **Larry Kelley,** Hillman-Kelley Co., assistant secretary - treasurer; **Bob Franklin,** Rolo Manufacturing Co., sergeant-at-arms; and **Jay Speece,** Gardner-Denver Co., deputy sergeant-at-arms. Regents elected include: **Ed Lorehn,** Cameron Iron Works; **Tracy Word,** Well Equipment Manufacturing Co.; and **Harry Estes,** A-1 Bit & Tool Co.

JOHN B. JARED, JR.

John B. Jared, Jr., has been appointed chief engineer for American Republics Corp., Houston, succeeding **John H. Bringhurst,** who retired. Jared, a graduate of Rice Institute, joined American Republics in 1936. In 1949 he was appointed assistant chief engineer of the company, a position he held until his new appointment.

Forrest M. McClain, assistant district geologist, has been named division geologist for Sunray Oil Corp. at San Antonio. **Leroy Cockrell,** district landman, has been named district manager. They will succeed **Harold G. Pickleseimer,** who resigned his position as district geologist and general manager.

Dean Metts, formerly chief geologist for The Chicago Corp., at Corpus Christi, has established offices in that city as a consulting geologist.

DEATHS

Erwin B. Moyer, 62, who retired in 1948 after serving for many years as an official of foreign affiliates of Standard Oil Co. (N. J.), died January 12 in Miami, Fla. He joined Jersey Standard in 1915 at Linden, N. J., and later was with the Argentine and Cuban affiliates.

Arthur E. Young, 77, retired head of the legal department of Standard Oil Co. (N. J.), died January 14 in Fairfield, Conn.

Ben H. Spence, 62, district supervisor of South Penn Oil Co., died January 15 in Oil City, Pa.

S. W. Webster, Emsco Derrick & Equipment Co.'s manager of Mid-Continent machinery sales, died December 16.

Douglas Baird Spivy, 48, independent oil broker, died January 19 at Texarkana, Ark.

Harry Stekoll, 57, founder and president of Stekoll Petroleum Corp., died January 21 at Palm Springs, Calif.

W. R. White, independent operator at Mount Carmel, Ill., died January 18.

John G. Phillips, 54, formerly sales manager for Phillips Petroleum Co., and later associated with Pittsburgh Steel Co., died January 17 aboard an ocean liner while returning home from Europe.

Mrs. Helen Jeanne Plummer, 59, research scientist in the University of Texas bureau of economic geology, and a top authority of core samples, died January 11 at Austin, Tex.

Frederick L. Buechner, 60, supervisor of reclamation at the Bayway refinery of Esso Standard Oil Co. at Linden, N. J., died January 13 in Elizabeth, N. J.

Carl Houston Davis, 43, assistant superintendent for Edwin B. Cox and Jake L. Hamon Oil Co., was killed January 12 near his home at Freer, Tex.

John L. Wiley, 49, chief electrical engineer for the McCullough Tool Co., Houston, died January 16.

Pete L. Reinhardt, 27, independent operator at Algonquin, Ill., was killed in an automobile accident in the suburbs of Chicago on January 17.

ANNUAL REVIEW AND FORECAST SECTION

MORE WELLS SCHEDULED.—1951 will see some 43,843 wells drilled—9,156 wildcats and 34,687 development wells—162,600,000 ft. of hole!

1950 WAS GOOD YEAR.—The U. S. industry drilled 43,279 wells—8,554 wildcats and 34,725 development.

EXPLORATION PEAK.—All-time records were established in 1950's exploratory drilling campaign. Total drilling was 34,100,000 ft.

PRODUCTION RECORD.—Crude oil hit an all-time high of 5,900,000 bbl. daily in October 1950. Average for the year was 5,414,000 bbl. daily.

MAJOR FIELDS.—136 giant oil fields have produced over 58 per cent of the total accumulated production in the U. S.

OIL RESERVES CLIMB.—U. S. proved reserves of total liquid hydrocarbons for January 1, 1951, are 29.95 billion barrels, up 1.37 billion barrels.

DEMAND UP.—Total demand for all oils in 1951 is forecast at 7,115,000 bbl. per day—5.3 per cent above 1950.

IMPORTS AND EXPORTS.—Total imports for 1950 averaged 844,000 bbl. daily; forecast for 1951 is 904,000 bbl.

REFINING AT ALL-TIME HIGH.—Crude runs to stills averaged 5,728,000 bbl. daily, an increase of 7.5 per cent.

NATURAL GASOLINE AND CYCLING.—Light-hydrocarbon products again break records. Each year since 1941 has seen successively high production rates.

WORLD PRODUCTION.—Crude-oil production world wide totaled 10.4 million barrels daily. A mark of 12,000,000 bbl. daily may be hit in closing months of 1951.

ROTARY RIGS BUSY.—An all-time peak of 2,407 rotary rigs were running in the U. S. early in December 1950.

NATURAL GAS CLIMBS.—In utilities sales, 3,694 billion cubic feet were sold last year, an increase of 19 per cent over 1949.

REFINING.—Full influence of rearmament program will be felt later this year.

WHO'S DOING WHAT.—In this issue, The Oil and Gas Journal again publishes its periodic construction surveys for petroleum refineries, natural-gasoline and cycling plants, and pipe lines.

- Prediction of number of wells and total footage to be drilled in 1951.
- Number of wells completed in 1950, and total number of feet drilled.
- Review of 1950 exploratory drilling—where the important wildcat areas were.
- Where records were broken in drilling deep holes—and the results.
- Review of U. S. crude production for 1950—and how it compared with other years.
- The nation's giant fields—what and where they are and how much they produced.
- U. S. reserves at year end — crude, natural gas, and natural-gas liquids.
- How the industry can meet 1951 demands, barring restrictive regulations.
- The export-import picture and which products show changes over 1949.
- Refinery operations, and factors which led to new all-time high in 1950.
- Light hydrocarbons, and how they, too, set new records in 1950.
- Also — world production, refining, natural-gasoline and pipe-line surveys, rotary rigs, pumping forecast, and other statistical data.

THE OIL AND GAS JOURNAL

REVIEW and FORECAST

Wildcats Will Boost 1951 Drilling To Another New Peak

by John C. Casper

OPERATORS' plans at the first of the year call for the drilling of 43,843 wells in 1951, an increase of 564 wells over the all-time record established in 1950. Broken down by types of drilling, the program for 1951 includes 9,156 wildcats for a gain of 602 wells or 7.0 per cent, and 34,687 development wells representing a decrease of 38 wells from the 1950 total. Total footage for the year is forecast at 162,634,000 ft., up 3,346,000 ft. or 2.1 per cent.

This estimate of drilling for the year represents the pattern presented by hundreds of operators in their replies to The Oil and Gas Journal's survey. The survey did not ask for the number of wells the operator would like to drill nor the number he would drill if he could get the steel. He was asked for an estimate of the number of wells he expected to complete in 1951 and a comparison with actual completions in 1950. The forecast for 1951 is based on the answers to those questions.

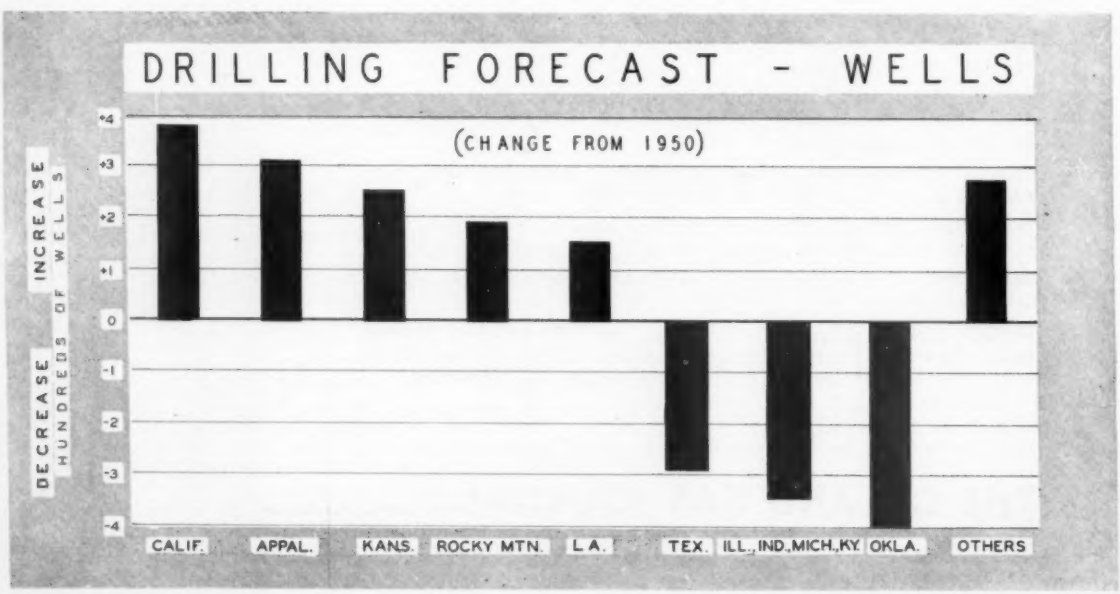
DRILLING FORECAST—1951

	Total wildcats	Total field wells	Total wells	Total footage (thou. ft.)
1951 forecast	9,156	34,687	43,843	162,634
1950 actual	8,554	34,725	43,279	159,288
1951 forecast vs. 1950 actual	+602	— 38	+564	+3,346
Per cent change	+ 7.0	—0.1	+ 1.3	+ 2.1

Principal increases for 1951:	Total wells
California	+391
Appalachian	+315
Kansas	+260
Rocky Mountain	+196
Louisiana	+167

The projection for 1951 represents the thinking of operators at the beginning of the year, but this does not mean that there will be no changes in these first-of-the-year plans during 1951. Any restrictions on drilling later in the year in the form of direct government orders or severe cuts in steel availability through allocations will reduce the number of completions for the year. On the other hand, if more steel can be found, operators will drill more wells. Many reports carried notations that the totals represented minimum programs.

Drilling trends within states were not as definite as they were for the forecast of the last half of 1950. At that time, the Journal was able to forecast wells and footage well within 1 per cent of the final totals. Reports for 1951 show wide variations within states. In some cases, an operator indicated a big increase in drilling for a particular state while another operator reported an equally big cut for the same state.



POSITION OF LARGE OPERATORS IN 1951 FORECAST

1950 actual—	32 large operators	All other operators	Total
Total wells drilled	10,059	33,220	43,279
Total wildcats drilled	1,186	7,368	8,554
Ratio wildcats to total	.118	.222	.198
Total field wells drilled	8,873	25,852	34,725
Total footage (thou. feet)	50,832	108,456	159,288
1951 forecast—			
Total wells	10,837	33,006	43,843
Total wildcats	1,582	7,574	9,156
Ratio wildcats to total	.146	.229	.209
Total field wells	9,255	25,432	34,687
Total footage (thou. feet)	59,371	103,263	162,634

Operators reporting more wells planned for 1951 than actual completions in 1950 represented 55.5 per cent of replies. Those with reduced programs for 1951 represented 35.5 per cent while 9 per cent expected to drill the same number of wells they completed last year. From the list of those reporting some wildcat drilling, 59.3 per cent plan to drill more wildcats this year, 29.7 per cent plan to drill fewer, and 11.0 per cent have scheduled the same number as last year. In general, a larger increase in total completions would be expected from reports with a breakdown of 55.5 per cent increases and 35.5 per cent reductions, but the average gain was less than the average loss.

Drilling by Large Operators

In order to get a better cross-section of drilling, large-operator reports and atypical reports were broken out and considered separately. The tabulation of reports from 32 large operators, including but not restricted to integrated companies, indicates that these operators have planned enough additional drilling in 1951 to account for most of the increases for the year. This group drilled about 23 per cent of all wells in 1950.

Increases for 1951 are generally indicated for the West Coast, Rocky Mountain, Gulf Coast, Appalachian, and in Kansas. High demands for crude in California have pushed production to near capacity. Prospects for continuing high military and civilian demands form a firm basis for expanded drilling programs for this year. Better prices for Pennsylvania Grade crude and the growing importance of natural gas are adding wells in the Appalachian area. Increases in the Rocky Mountain area are the result of increased demand and more transportation, current and projected, for the area.

Operators reported decreases for Oklahoma, certain districts of Texas, and for the Illinois basin. Reductions in Texas were chiefly in the north central and eastern districts. The small reduction in West Texas is probably due to the rapid and in some cases forced expansion in 1950. This district accounted for 41 per cent of the total increase in drilling last year.

Wildcatting, as projected, will account for all of the increase for the year with gains reported for many states having an over-all reduction in drilling. Exploratory drilling by states is subject to change during the year as new strikes attract drilling to the areas. The totals may shift some by states, but operators plan to make 1951 another record year for wildcat drilling.

Drilling Forecast for 1951 by Areas

	1951 Forecast				Change from 1950 actual			
	Wildcat wells	Field wells	Total wells	Total footage	Wildcat wells	Field wells	Total wells	Total footage
Alabama	10	25	35	140,000	—10	2	—8	—48,000
Arkansas	115	335	450	1,470,000	15	28	43	128,000
California	520	1,700	2,220	9,730,000	70	321	391	1,764,000
Colorado	80	75	155	640,000	24	32	56	231,000
Florida	6	0	6	*55,000	—4	—3	—7	—22,000
Illinois	825	1,900	2,725	6,100,000	15	—113	—98	—211,000
Indiana	610	880	1,490	2,570,000	40	—84	—44	—72,000
Kansas	885	3,385	4,270	13,450,000	69	191	260	706,000
Kentucky	240	780	1,020	1,860,000	26	—156	—130	—216,000
Louisiana	360	2,260	2,620	16,050,000	58	109	167	1,495,000
Northern	160	1,165	1,325	4,620,000	24	—26	—2	—7,000
Southern	200	1,095	1,295	11,430,000	34	135	169	1,502,000
Michigan	300	525	825	1,890,000	—38	—34	—72	—228,000
Mississippi	105	200	305	2,180,000	—25	17	—8	—78,000
Montana	60	225	285	670,000	11	4	15	49,000
Nebraska	85	80	165	580,000	3	—9	—6	—29,000
New Mexico	90	670	760	3,450,000	11	142	153	703,000
New York	0	720	720	1,030,000	0	63	63	86,000
Ohio	25	1,095	1,120	2,360,000	6	87	93	188,000
Oklahoma	930	4,130	5,060	18,180,000	90	—489	—399	—1,685,000
Pennsylvania	25	1,730	1,755	3,060,000	21	153	174	346,000
Texas	3,640	12,650	16,290	71,365,000	197	—492	—295	—610,000
Dists. 1 and 4 (SW)	665	1,685	2,350	10,220,000	37	156	193	738,000
Dists. 2 and 3 (G.C.)	570	1,860	2,430	14,310,000	7	115	122	604,000
Dists. 5 and 6 (E)	235	740	975	4,155,000	12	—201	—189	—772,000
Dists. 7-B and 9 (N)	1,330	3,270	4,600	13,220,000	—6	—456	—462	—1,293,000
Dists. 7-C and 8 (W)	820	4,180	5,000	26,540,000	151	—156	—5	—3,000
Dist. 10 (PH.)	20	915	935	2,920,000	—4	50	46	116,000
Utah	10	17	27	130,000	—3	13	10	61,000
West Virginia	45	685	730	1,950,000	2	76	78	227,000
Wyoming	160	570	730	3,560,000	38	77	115	566,000
Miscellaneous	30	50	80	164,000	—14	27	13	—5,000
Total United States	9,156	34,687	43,843	162,634,000	602	—38	564	3,346,000

REVIEW and FORECAST

New All-Time Records Set in Both Completions and Footage in 1950

by Polly DeArmond

EMPHASIZING exploratory activity during 1950, operators finished the greatest year in the history of the industry. New all-time highs were established in both the number of wells and footage drilled. The 43,279 total completions represent gains of 4,241 wells, or 10.8 per cent, over 1949, and 3,501 wells, or 8.8 per cent, over the previous record year of 1948. Total footage of 159,287,865 ft. was an increase of 21,284,901 ft., or 15.4 per cent, over 1949 (the last all-time peak), and 21,896,017 ft., or 15.9 per cent, more than footage drilled in 1948.

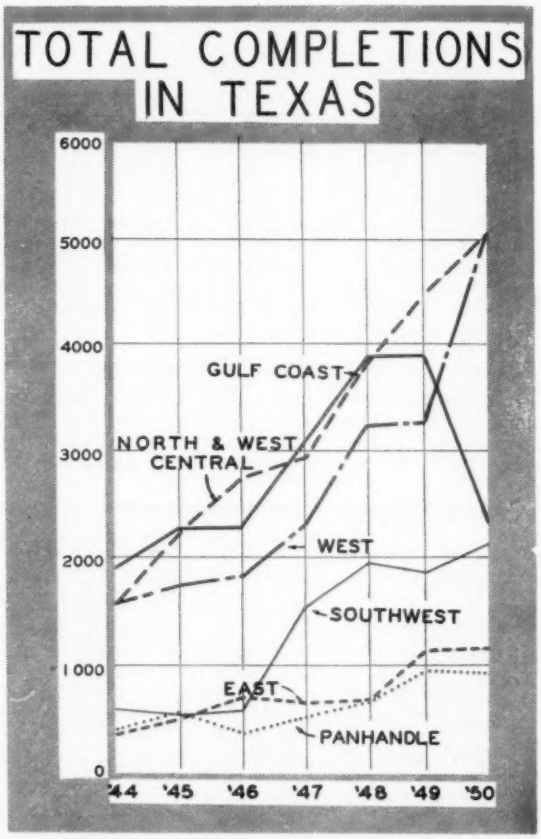
These new drilling records were foreseen at the middle of the year, when operators tabulated their first-half activity, and plotted forecasts of their last-half's work. The operators reported that they hoped to finish 43,084 wells for 159,309,000 ft. during the entire year. Their expectations were exceeded by 213 completions, while their footage goal was missed by only 21,000 ft. *(See The Oil and Gas Journal, July 27, 1950, pp. 170-173).*

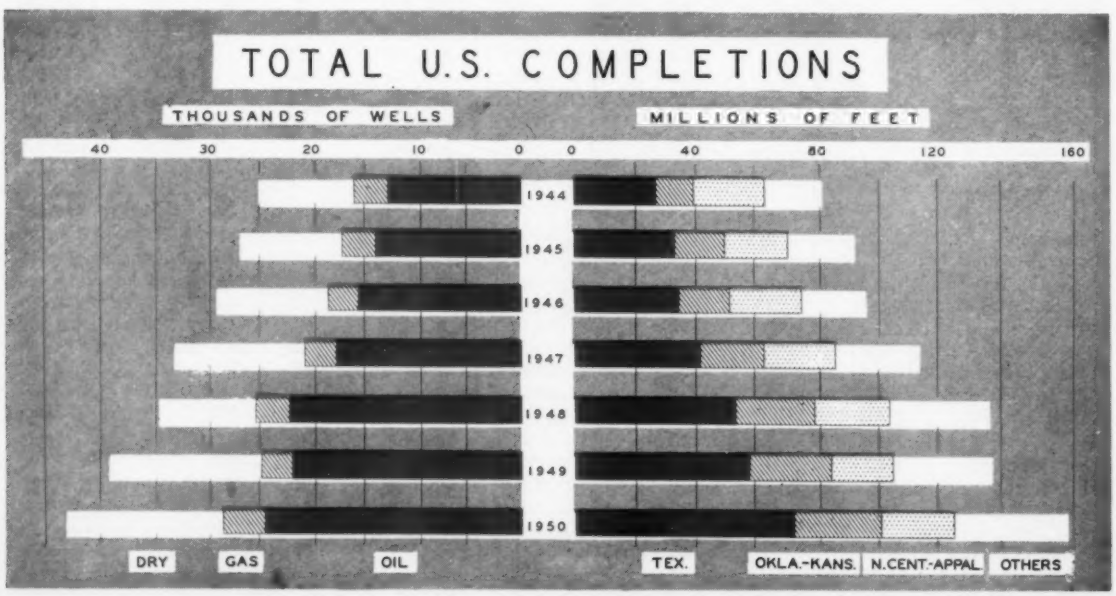
Wildcat Record

Highlighting the accomplishment of the tremendous program for the year was the accelerated rate of exploratory drilling. All previous records for wildcatting were broken when 8,554 exploratory tests were completed with a total of 34,152,381 ft. of hole drilled. The following increases were noted over the 1949 all-time highs: 1,260 more wildcat completions, or 17.3 per cent, and some 4,869,000 additional feet, or 16.6 per cent.

Leading States

Over 38 per cent of all wells was accounted for by Texas, which led the nation with 16,585 completions. Oklahoma, Kansas, and Illinois retained their second, third, and fourth positions, respectively.





TOTAL UNITED STATES COMPLETIONS BY STATES

State—	Total comp.	Oil	Gas	Service	Dry	Average footage	Total comp. 1949
Alabama	43	18	1	0	24	4,368	19
Arkansas	407	242	2	10	153	3,296	322
California	1,829	1,278	51	1	499	4,356	2,512
Colorado	99	22	12	0	65	4,132	82
Dakotas	15	0	0	0	15	3,840	18
Florida	13	1	0	0	12	5,893	24
Illinois	2,823	1,280	17	15	1,511	2,236	2,711
Indiana	1,534	576	51	1	906	1,722	1,279
Kansas	4,010	1,985	400	60	1,565	3,178	3,387
Kentucky	1,150	516	157	3	474	1,805	1,047
Louisiana	2,453	1,493	196	6	758	5,933	2,371
Northern	1,327	773	154	4	396	3,486	1,448
Southern	1,126	720	42	2	362	8,817	923
Michigan	897	348	30	60	459	2,362	995
Mississippi	313	124	9	0	180	7,214	334
Missouri	27	2	10	0	15	852	22
Montana	270	154	20	0	96	2,301	279
Nebraska	171	76	10	0	85	3,550	27
New Mexico	607	396	88	0	123	4,526	501
New York	657	337	0	320	0	1,437	882
Ohio	1,027	347	278	46	356	2,115	1,084
Oklahoma	5,459	3,304	249	94	1,812	3,639	4,352
Pennsylvania	1,581	763	210	557	51	1,717	1,920
Texas	16,585	10,665	647	76	5,197	4,340	13,565
North Central (9)	3,021	1,637	22	39	1,323	2,884	2,571
West Central (7-B)	2,041	953	49	11	1,028	2,842	1,913
West (7-C & 8)	5,005	4,117	16	7	865	5,303	3,261
Panhandle (10)	889	582	232	0	75	3,154	959
Eastern (5 & 6)	1,164	801	51	12	300	4,233	1,114
Gulf Coast (2 & 3)	2,308	1,390	153	5	760	5,938	1,980
Southwest (1 & 4)	2,157	1,185	124	2	846	4,396	1,867
Utah	17	5	1	0	11	4,069	49
West Virginia	652	132	384	0	136	2,643	518
Wyoming	615	365	18	0	232	4,869	587
Miscellaneous	25	1	2	0	22	3,548	51
Total 1950	43,279	24,430	2,843	1,249	14,757	3,680	
Total 1949	39,038	22,042	2,887	1,382	12,727	3,538	39,038
Total 1948	39,778	22,585	2,897	2,270	12,076	3,454	
Total 1947	33,122	17,999	3,305	2,280	9,538	3,443	
Total 1946	29,229	15,851	3,090	2,237	8,051	3,321	
Total 1945	26,879	14,297	2,899	2,212	7,471	3,469	
Total 1944	25,262	13,029	3,067		*9,166	3,234	
Total 1943	19,477	9,717	1,897		*7,863	3,250	

*Includes service wells.

Louisiana superseded California as fifth, the West Coast state dropping back to sixth in 1950. Pennsylvania and Indiana remained seventh and eighth. Kentucky and Ohio traded places — Kentucky now ninth and Ohio tenth.

Texas also held indisputable first place in the footage category, commanding more than 45 per cent of all the hole drilled for the year. In 1950 the same states as in 1949 ranked from second to sixth, consecutively. They were: Oklahoma, Louisiana, Kansas, California, and Illinois. Separated from the six higher-ranking areas by a sharp break in total footage, the following states still placed in the top 10 as seventh to tenth (in that order): Wyoming, New Mexico, Pennsylvania, and Indiana.

Deeper Drilling

For the past 5 years there has been a steady increase in the average depth per well drilled in the United States, with a marked gain between 1950 and 1949. Average footage for 1950 jumped to 3,680 ft. compared with 3,538 ft. for the preceding year. This can be attributed to a continuing decline of completions in the shallow Appalachian area, coupled with a conspicuous increase in West Texas. During 1950 there were 1,744 more wells drilled in West Texas than for the previous year, and completions in that section averaged 5,303 ft. against 5,028 ft. for the year before. Other areas which reflected increased average footage include: Arkansas, California, Colorado, Illinois, Kentucky, both North and South Louisiana, Michigan, Oklahoma, North Central Texas, Texas Panhandle, Wyoming,

DRILLING METHODS—1950

State—	Total	Rotary	Cable
Alabama	43	43	0
Arkansas	407	407	0
California	1,829	1,822	7
Colorado	99	99	0
Florida	13	13	0
Illinois	2,823	2,590	233
Indiana	1,534	1,023	511
Kansas	4,010	3,639	371
Kentucky	1,150	662	488
Louisiana	2,453	2,453	0
Northern	1,327	1,327	0
Southern	1,126	1,126	0
Michigan	897	542	355
Mississippi	313	313	0
Montana	270	174	96
Nebraska	171	90	81
New Mexico	607	515	92
N. Y., Pa., W. Va.	2,890	0	2,890
Ohio	1,027	0	1,027
Oklahoma	5,459	4,781	678
Texas	16,585	15,509	1,076
N. & W. Central	5,062	4,532	530
West	5,005	4,506	499
Panhandle	889	858	31
Eastern	1,164	1,152	12
Gulf Coast	2,308	2,308	0
Southwest	2,157	2,153	4
Utah	17	17	0
Wyoming	615	551	64
Miscellaneous	67	55	12
Total	43,279	35,298	7,981

Wells drilled by rotary and finished by cable tools are included under rotary.

DEPTH CLASSIFICATIONS—1950

State—	Under 2,500 ft.	2,500-5,000 ft.	5,000-7,500 ft.	7,500-10,000 ft.	10,000-12,500 ft.	Over 12,500 ft.
Alabama	3	29	7	3	0	1
Arkansas	120	237	27	23	0	0
California	459	819	328	136	66	21
Colorado	28	23	45	3	0	0
Florida	2	5	3	0	3	0
Illinois	1,446	1,377	0	0	0	0
Indiana	1,286	248	0	0	0	0
Kansas	638	3,346	25	1	0	0
Kentucky	915	233	2	0	0	0
Louisiana	746	385	415	402	434	71
Northern	726	274	214	84	29	0
Southern	20	111	201	318	405	71
Michigan	536	355	6	0	0	0
Mississippi	3	20	171	77	41	1
Montana	177	81	10	2	0	0
Nebraska	58	98	15	0	0	0
New Mexico	142	268	80	81	29	7
N. Y., Pa., W. Va.	2,437	409	41	3	0	0
Ohio	576	447	4	0	0	0
Oklahoma	1,583	2,667	959	114	132	4
Texas	4,500	5,925	4,485	1,377	253	45
N. & W. Central	2,535	1,954	569	4	0	0
West	811	1,274	2,326	448	109	37
Panhandle	47	819	12	6	5	0
Eastern	235	602	208	115	3	1
Gulf Coast	231	605	802	557	107	6
Southwest	641	671	568	247	29	1
Utah	3	11	2	1	0	0
Wyoming	60	310	167	63	9	6
Miscellaneous	46	9	8	2	1	1
Total	15,764	17,302	6,800	2,288	968	157

WILDCAT COMPLETIONS BY STATES

State—	Comp.	Oil	Gas	Dry
Alabama	20	1	1	18
Arkansas	100	10	0	90
California	450	44	5	401
Colorado	56	6	3	47
Dakotas	15	0	0	15
Florida	10	0	0	10
Illinois	810	104	6	700
Indiana	570	74	6	490
Kansas	816	128	14	674
Kentucky	214	26	1	187
Louisiana	302	66	6	230
Northern	136	17	2	117
Southern	166	49	4	113
Michigan	338	29	6	303
Mississippi	130	12	0	118
Missouri	7	0	0	7
Montana	49	3	0	46
Nebraska	82	9	4	69
New Mexico	79	17	6	56
New York	0	0	0	0
Ohio	19	2	2	15
Oklahoma	840	163	21	656
Pennsylvania	4	0	1	3
Texas	3,443	575	113	2,755
North Central (Dist. 9)	607	93	15	499
West Central (Dist. 7-B)	729	139	18	572
West (Dist. 7-C & 8)	669	110	6	553
Panhandle (Dist. 10)	24	1	2	21
Eastern (Dist. 5 & 6)	223	22	3	198
Gulf Coast (Dist. 2 & 3)	563	113	40	410
Southwest (Dist. 1 & 4)	628	97	29	502
Utah	13	1	1	11
West Virginia	43	0	23	20
Wyoming	122	22	1	99
Miscellaneous	22	1	1	20
Total 1950	8,554	1,293	221	7,040
Total 1949	7,294	1,086	196	6,012

DEVELOPMENT COMPLETIONS BY STATES

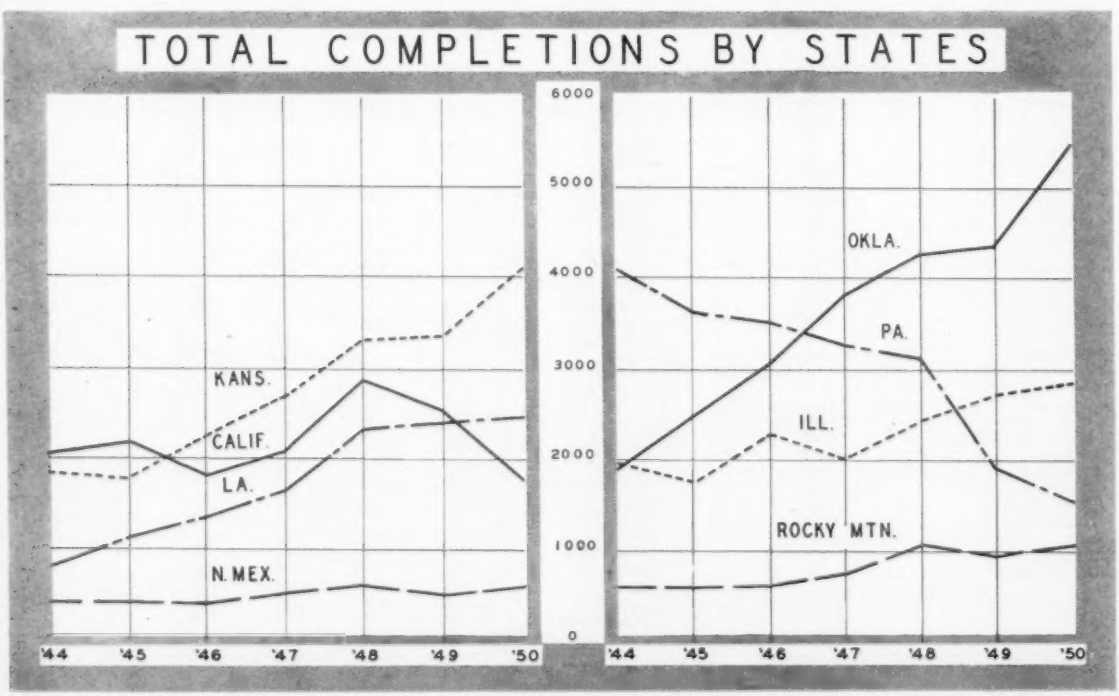
State—	Comp.	Oil	Gas	Dry*
Alabama	23	17	0	6
Arkansas	307	232	2	73
California	1,379	1,234	46	99
Colorado	43	16	9	18
Dakotas	0	0	0	0
Florida	3	1	0	2
Illinois	2,013	1,176	11	826
Indiana	964	502	45	417
Kansas	3,194	1,857	386	951
Kentucky	936	490	156	290
Louisiana	2,151	1,427	190	534
Northern	1,191	756	152	283
Southern	960	671	38	251
Michigan	559	319	24	216
Mississippi	183	112	9	62
Missouri	20	2	10	8
Montana	221	151	20	50
Nebraska	89	67	6	16
New Mexico	528	379	82	67
New York	657	337	0	320
Ohio	1,008	345	276	387
Oklahoma	4,619	3,141	228	1,250
Pennsylvania	1,577	763	209	605
Texas	13,142	10,090	534	2,518
North Central (Dist. 9)	2,414	1,544	7	863
West Central (Dist. 7-B)	1,312	814	31	467
West (Dist. 7-C & 8)	4,336	4,007	10	319
Panhandle (Dist. 10)	865	581	230	54
Eastern (Dist. 5 & 6)	941	779	48	114
Gulf Coast (Dist. 2 & 3)	1,745	1,277	113	355
Southwest (Dist. 1 & 4)	1,529	1,088	95	346
Utah	4	4	0	0
West Virginia	609	132	361	116
Wyoming	493	343	17	133
Miscellaneous	3	0	1	2
Total 1950	34,725	23,137	2,822	8,966
Total 1949	31,744	20,956	2,691	8,097

*Includes service wells.

and slight gains in depth per well in New York, Pennsylvania, and Ohio.

Success Cost

In the unprecedented search for production, operators "paid" a little more in dry holes in 1950. Excluding all wells not expressly drilled for oil or gas (disposal, input, and storage wells), a total of 42,030 wells were completed. Of this number, 27,273, or 64.9 per cent, found production of one kind or another. This compares with 66.2 per cent in 1949. In a further breakdown, 58.1 per cent found oil, compared with 58.5 per cent the previous year, and 6.8 per cent produced gas, as against 7.6 per cent in 1949.



SERVICE-WELL COMPLETIONS BY MONTHS

Month—	Penna.	N. Y.	Other	U. S.
January	38	30	25	93
February	38	23	30	91
March	37	17	31	85
April	38	28	26	92
May	45	30	41	116
June	57	34	39	130
July	57	32	44	133
August	55	22	37	114
September	51	20	16	87
October	55	38	28	121
November	48	26	32	106
December	38	20	23	81
Total 1950	557	320	372	1,249

DISTILLATE COMPLETIONS BY MONTHS

Month—	Tex.	La.	Other	U. S.
January	13	21	4	38
February	8	9	10	27
March	16	17	11	44
April	7	12	6	25
May	13	20	9	42
June	21	14	8	43
July	16	12	6	34
August	23	15	9	47
September	15	7	3	25
October	22	9	12	43
November	29	10	7	46
December	18	9	15	42
Total 1950	201	155	100	456

DEPTH CLASSIFICATIONS* BY MONTHS

Month—	A	B	C	D	E	F
January	1,112	1,232	462	184	79	10
February	1,026	1,162	493	132	71	12
March	1,205	1,346	610	202	71	10
April	1,227	1,247	543	149	70	13
May	1,307	1,397	494	187	84	9
June	1,480	1,649	626	208	95	12
July	1,562	1,575	570	178	73	12
August	1,472	1,628	645	234	93	16
September	1,413	1,478	586	184	74	12
October	1,382	1,541	543	195	81	20
November	1,384	1,619	644	230	87	18
December	1,194	1,428	584	205	90	13
Total 1950	15,764	17,302	6,800	2,288	968	157

*A: Under 2,500 ft.; B: 2,500-5,000 ft.; C: 5,000-7,500 ft.; D: 7,500-10,000 ft.; E: 10,000-12,500 ft.; F: Over 12,500 ft.

TOTAL COMPLETIONS BY MONTHS

Month—	Comp.	Oil	Gas	Dry	Footage
January	3,079	1,808	227	1,044	11,546,381
February	2,896	1,664	187	1,045	10,946,287
March	3,444	2,017	229	1,198	12,994,200
April	3,249	1,896	174	1,179	11,846,878
May	3,478	1,974	252	1,252	12,452,869
June	4,070	2,334	282	1,454	14,783,098
July	3,970	2,200	240	1,530	13,814,413
August	4,088	2,276	262	1,550	15,065,005
September	3,747	2,023	258	1,466	13,584,146
October	3,762	2,019	275	1,468	13,654,378
November	3,982	2,211	230	1,541	15,077,759
December	3,514	2,008	227	1,279	13,522,453
Total 1950	43,279	24,430	2,843	16,006	159,287,865

WILDCAT COMPLETIONS BY MONTHS

Month—	Comp.	Oil	Gas	Dry	Footage
January	527	92	17	418	2,231,595
February	584	80	23	481	2,421,669
March	650	102	16	532	2,610,212
April	652	91	12	549	2,558,688
May	641	112	13	516	2,507,148
June	811	130	25	656	3,205,448
July	773	114	15	644	2,843,072
August	807	128	12	667	3,190,832
September	802	109	31	662	3,071,180
October	755	116	21	618	2,993,883
November	833	111	17	705	3,353,585
December	719	108	19	592	3,165,069
Total 1950	8,554	1,293	221	7,040	34,152,381

DEVELOPMENT COMPLETIONS BY MONTHS

Month—	Comp.	Oil	Gas	Dry	Footage
January	2,552	1,716	210	626	9,314,786
February	2,312	1,584	164	564	8,524,618
March	2,794	1,915	213	666	10,383,988
April	2,597	1,805	162	630	9,288,190
May	2,837	1,862	239	736	9,945,721
June	3,259	2,204	257	798	11,577,648
July	3,197	2,086	225	886	10,971,341
August	3,281	2,148	250	883	11,874,173
September	2,945	1,914	227	804	10,512,966
October	3,007	1,903	254	850	10,660,495
November	3,149	2,100	213	836	11,724,174
December	2,795	1,900	208	687	10,357,384
Total 1950	34,725	23,137	2,622	8,966	125,135,484

Total Footage Drilled in United States by Years

(Thousands of feet)

	1943	1944	1945	1946	1947	1948	1949	1950
Arkansas	1,095	1,190	828	728	1,409	1,270	1,283	1,342
California	4,793	7,527	8,671	7,509	8,764	10,579	10,443	7,966
Colorado	83	207	352	1,063	1,151	1,228	359	409
Illinois	4,668	4,958	4,565	5,925	5,251	6,386	6,362	6,311
Indiana	428	581	500	1,071	1,206	2,023	2,357	2,642
Kansas	5,808	6,194	5,877	6,556	8,690	10,634	10,715	12,744
Kentucky	1,182	1,863	1,275	1,175	1,194	1,515	1,853	2,076
Louisiana	4,337	5,723	7,774	8,464	8,709	10,934	12,477	14,554
Northern	1,199	1,408	2,117	3,175	2,912	4,128	4,453	4,626
Southern	3,138	4,315	5,657	5,289	5,797	6,806	8,024	9,928
Michigan	1,548	1,620	1,963	1,749	1,935	1,983	2,209	2,118
Mississippi	635	776	2,403	1,971	4,131	3,312	2,388	2,258
Montana	533	946	754	661	630	819	650	621
New Mexico	770	1,322	1,508	1,624	2,512	2,602	2,419	2,747
New York, Pennsylvania, West Virginia	9,071	10,038	10,225	9,985	9,702	9,293	5,835	5,381
Ohio	2,493	2,730	2,689	3,402	3,913	3,498	2,286	2,172
Oklahoma	3,945	7,172	10,048	9,771	12,151	15,515	15,339	19,865
Texas	19,030	26,621	32,495	34,352	41,029	52,746	57,462	71,975
North Central	4,097	4,395	5,864	7,065	8,544	11,312	12,831	14,513
West	4,195	7,572	8,497	8,815	10,809	15,428	16,398	26,543
Panhandle	546	984	1,686	943	1,593	2,053	3,015	2,804
Eastern	1,769	1,867	2,504	3,792	3,070	3,383	4,992	4,928
Gulf Coast	3,618	9,491	11,690	11,599	9,559	11,995	11,880	13,706
Southwest	4,805	2,312	2,254	2,138	7,454	8,575	8,346	9,481
Wyoming	557	907	967	716	1,203	2,501	2,803	2,994
Miscellaneous	302	371	346	334	481	554	763	1,113
Total United States	61,278	80,746	93,240	97,056	114,061	137,392	138,003	159,288

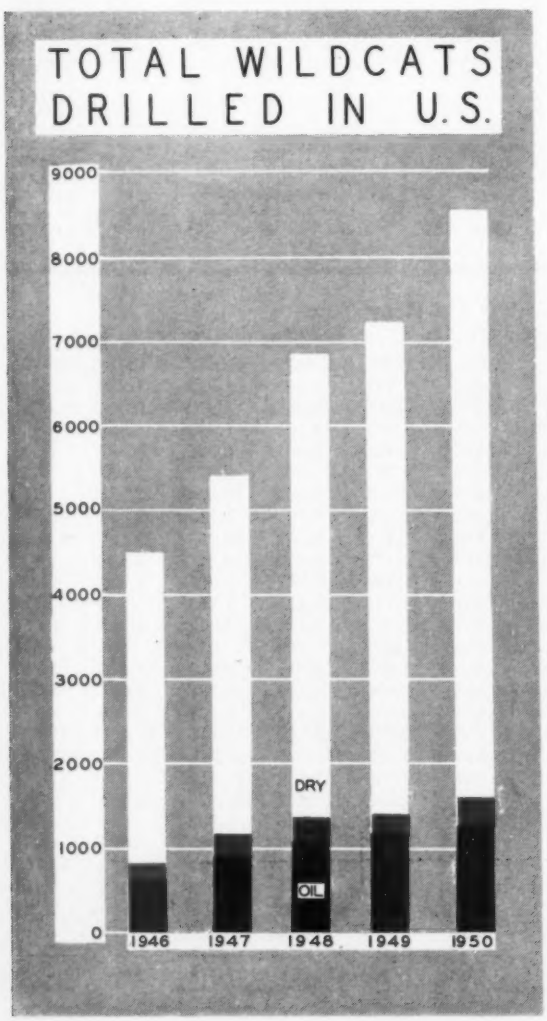
REVIEW and FORECAST

All-Time Records Established By 1950 Exploratory Drilling

by Philip C. Ingalls

WILDCAT drilling during 1950 broke all previous records. The total number of exploratory holes drilled last year was 8,554, an increase of 17.3 per cent over the previous record of 7,294 holes set in 1949. Also, the footage drilled by this record-breaking number of holes broke another all-time high set in 1949. During 1950, 34,152,000 ft. was drilled by exploratory holes, 16.6 per cent more than the previous record of 29,283,000 ft.

The accompanying tables show the results of 1950's 11 most active states in exploratory drilling. Texas, with 40 per cent of the total exploratory wells drilled in the United States, and 46.5 per cent of the country's total wildcat footage, was way out in front. Oklahoma, showing a small increase in the number of wildcats drilled for the first time since 1947, was the second most active state. Kansas, with a phenomenal 60 per cent increase over 1949 in both number of wildcats and wildcat footage, was the most outstanding example of the increased exploratory activity this past year.



U. S. EXPLORATION RESULTS IN 1950

State—	Total wildcats	Per cent— Oil	Gas	Dry
Texas	3,443	16.7	3.3	80.0
Oklahoma	840	19.4	2.5	78.1
Kansas	816	15.7	1.7	82.6
Illinois	810	12.8	0.7	86.5
Indiana	570	13.0	1.1	85.9
California	450	9.8	1.1	89.1
Michigan	338	8.6	1.8	89.6
Louisiana	302	21.8	2.0	76.2
Kentucky	214	12.1	0.5	87.4
Mississippi	130	9.2	0	90.8
Wyoming	122	18.0	0.8	81.2
All others	519	9.6	8.1	82.3
Total U. S.	8,554	15.1	2.6	82.3
Total 1949	7,294	14.9	2.7	82.4
Total 1948	6,877	15.0	3.6	81.4
Total 1947	5,461	15.8	4.5	79.7

WILDCAT FOOTAGE DRILLED IN STATES WITH GREATEST WILDCAT ACTIVITY

(Thousands of feet)

State—	1950	1949	1948
Texas	15,888	13,108	12,381
Oklahoma	3,308	3,216	3,632
Kansas	2,859	1,782	1,821
Louisiana	2,423	2,335	2,600
Illinois	1,834	1,584	1,582
California	1,763	1,899	2,244
Indiana	1,016	904	658
Mississippi	974	810	802
Michigan	797	747	699
Wyoming	596	692	447
Kentucky	447	322	270
All others	2,247	1,884	2,059
Total United States	34,152	29,283	29,195

Average Wildcat Shallower

Contrary to ideas that often develop from the publicity given deep exploratory tests, the average footage per exploratory well for the past 3 years has been declining slightly. In 1948 there was 29,195,000 ft. drilled by 6,877 wildcats for an average depth of 4,245 ft. The next year 7,294 exploratory tests drilled 29,283,000 ft. for an average depth of 4,015 ft. And, in 1950, 34,152,000 ft. were drilled by 8,554 wildcats for an average depth of 3,993 ft. These figures bring out the fact that last year there was an exceptional

amount of exploratory drilling in the shallower areas of Illinois, Kentucky, central Kansas, eastern Oklahoma, and North Texas.

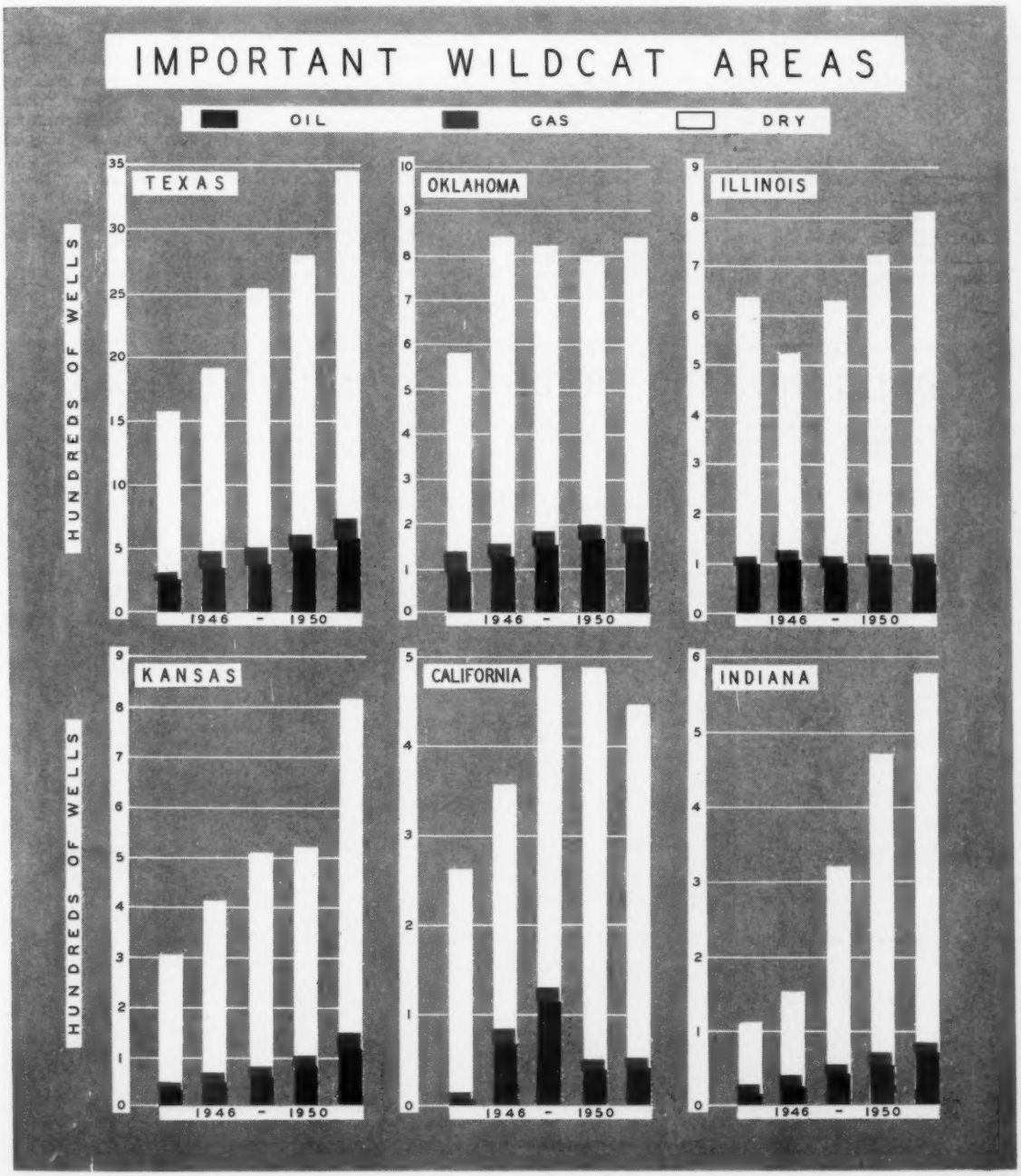
Success Ratios

The oil-well success ratios of wildcats during 1950 were comparable to those of the preceding 3 years, but there has been a definite trend downward in the number of gas discoveries since 1947. The total success ratio, combining oil and gas, was 20.4 per cent in 1947, 18.6 per cent in 1948, 17.6 per cent in 1949, and 17.7 in 1950.

In these statistics a well is classed as successful if it finds some oil or gas. A wildcat classed as successful may have opened a 10,000,000-bbl. pool or a 10,000-bbl. pool.

An excellent analysis of exploratory-well statistics by Frederic H. Lahee was discussed in the January 4, 1951, issue of The Oil and Gas Journal.

Using rank wildcats only, which constituted more than 50 per cent of all exploratory holes for the years considered, Lahee found that only 1 out of 44 holes of this classification had discovered a field with more than 1,000,000 bbl., that only 1 out of about 245 holes had discovered a field with more than 10,000,000 bbl., and only 1 out of nearly 1,000 found a field with more than 50,000,000 bbl. Comparable discovery success ratios for rank wildcats can be expected for any 3-year period and the past year's discoveries probably fit into this pattern with one possible exception—the percentage of rank wildcats may be lower than the 50 per cent of recent years.



REVIEW and FORECAST

Seven Areas Get Deeper Holes—Five Producing-Depth Records Set

by Polly DeArmond

THE year 1950 failed to see much change in either drilling or producing depth records. Superior Oil Co.'s 1 Unit, Sublette County, Wyoming, wildcat, is still the world's deepest well at 20,521 ft. This mark is being threatened currently by a Mississippi wildcat, George Vasen 1 Fee, Stone County. The Vasen venture was coring around 19,500 ft. at year's end.

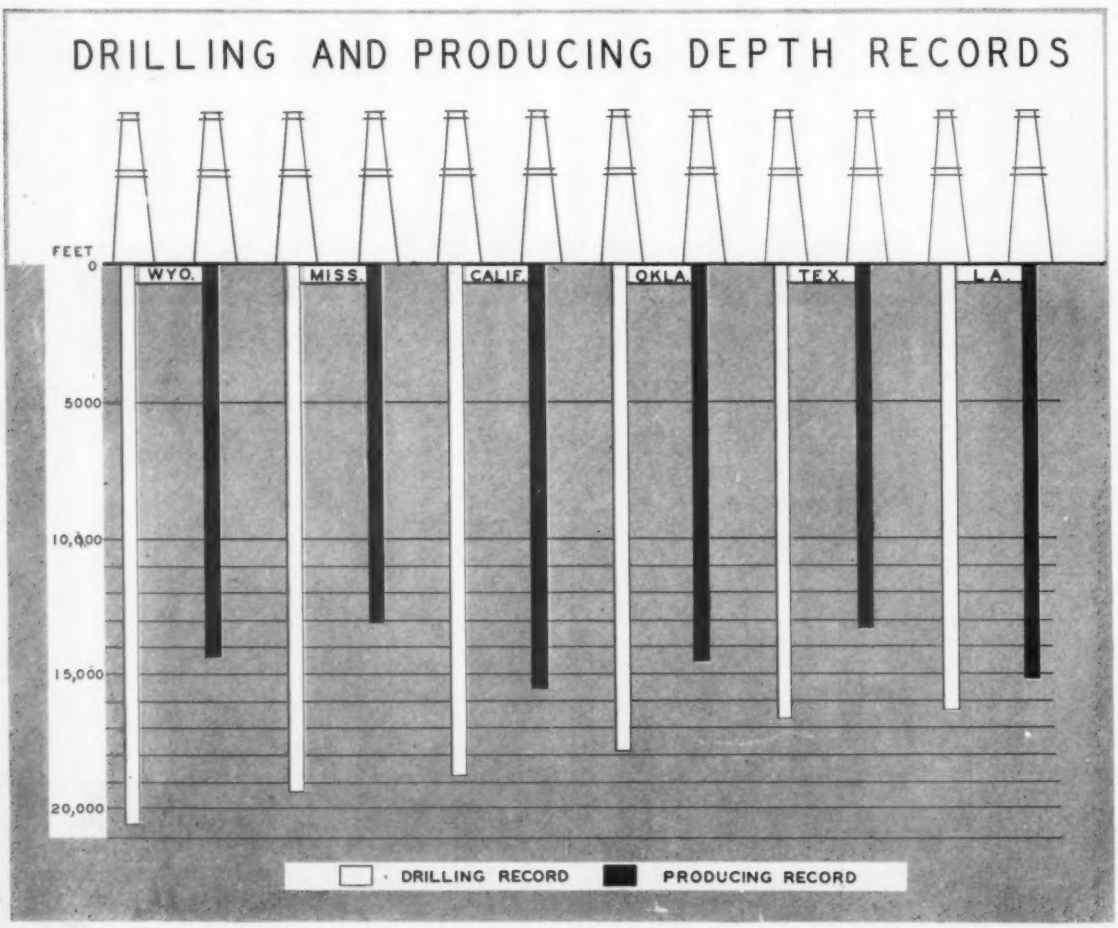
The producing depth record for the world still stands at 15,520 ft., and is held by Standard Oil Co. of California's 1 Mushrush, Wasco field well, Kern County, California.

There were, however, new drilling records set in seven areas, and new producing-depth records established in five sections of the country.

New depth records were reported for Arizona, Colorado, Mississippi, Nevada, North Dakota, South Louisiana, and Southeast New Mexico. The same areas remained in the top 12 listing with wells over 15,000 ft., but their positions were altered slightly from the previous year with Mississippi jumping from eighth place to second.

New deeper producing levels were established in Nebraska, South Louisiana, Upper Gulf Texas, Utah, and West Texas. Two Peck field wells vied for the record in West Texas; both produced oil from the same formation at the same effective depth.

Due to the industry's interest in deep drilling, The Oil and Gas Journal has added a new feature in this year's annual Review and Forecast Number. Beginning on page 301 are paragraphs describing all wells, development and wildcat, drilled to a total depth of 12,500 ft. or deeper. This new survey shows that out of 157 wells that went below 12,500 ft., 71 were drilled in South Louisiana and 45 in Texas. California reported 21, New Mexico had 7, Wyoming showed 6, and Oklahoma recorded 4. Alabama, North Dakota, and Mississippi each accounted for one of these "deep wells."



United States Drilling Depth Records

State or area—	Well and location; county	Result	Year comp.	Deepest formation	Total footage
Wyoming	Superior 1 Unit, 27-27n-103w; Sublette	Dry	1949	U. Cretaceous	20,521
Mississippi	Vasen 1 Fee, 9-2s-11w; Stone	Drlg.	....	.....	19,500
California	Superior 1 Limoneira, 9-2n-22w; Ventura	Dry	1949	U. Miocene	18,734
Oklahoma	Superior 51-11 Weller, 11-8n-12w; Caddo	Dry	1947	Pennsylvanian	17,823
Upper Gulf Texas	Phillips 3 Schoeps, Millican Salt Dome; Brazos	Dry	1945	Cretaceous	16,655
East Texas	Humble 1 McWatters; Freestone	Oil	1949	Smackover	16,347
South Louisiana	Placid 1 City of New Orleans, 22-23s-22e; Lafourche	Dry	1950	.....	16,237
Lower Gulf Texas	Texas 6 Yturria L. & L. Co., Raymondville; Willacy	Dry	1947	.....	16,006
Alabama	Humble 2 Williams, 21-6n-4w; Washington	Dry	1949	.....	15,659
South Texas	Quintana 3-D So. Tex. Syndicate; McMullen	Dry	1945	Cretaceous	15,301
West Texas	Phillips 1 Price, 11-101-TCRR; Pecos	Dry	1945	Ellenburger	15,279
Florida	Gulf 1 State; Monroe	Dry	1947	.....	15,155
Southeast New Mexico	Humble 1 Federal-Wiggs, 31-24s-27e; Eddy	Dry	1950	Ellenburger	14,865
Panhandle Texas	Gulf 1-E Porter "A," 413-43-H&TC; Lipscomb	Dry	1949	Ellenburger	14,278
Colorado	Mountain Fuel 1 Hiawatha, 14-12n-100w; Moffat	Drlg.	....	.....	14,225
South Central Texas	Stanolind 1 Henry; McMullen	Dry	....	.....	14,046
Utah	Equity & Pacific Western 1 Unit, 33-21s-21e; Grand	Dry	1949	Pennsylvanian	13,767
North Louisiana	Union 1 McDonald Unit; Claiborne	Oil	1942	Smackover	12,952
North Dakota	Kelly & Plymouth 1 Leutz, 28-142n-89w; Mercer	Dry	1950	Ordovician	12,526
East Texas Border	Humble 1 Pickering Lumber; Shelby	....	1946	Jurassic	12,221
Montana	Shell 1 Crow Tribal, 36-9s-37e; Big Horn	Dry	1949	Charles	11,519
Arkansas	Stanolind 1 Bodcaw, 29-19s-23w; Lafayette	Dry	1948	Smackover	11,434
Michigan	Ohio & Pure 1 Reinhardt, 35-22n-2e; Ogemaw	Dry	1948	Cambro-Ord.	11,012
Washington	Standard of Calif. 1 Alderwood; Snohomish	Dry	1947	.....	11,002
Nevada	Continental & Standard of Calif. 1 Meridian, 31-16n-56e; White River	Dry	1950	Ordovician	10,314
Pennsylvania	Manufacturers Heat & Light 8 Barton est.; Butler	Dry	1949	.....	10,312
Idaho	Phillips & Utah Southern 1 Juniper, 10-14s-30e; Oneida	Drlg.	....	.....	10,300
North Carolina	Standard of N. J. 1 Hatteras Light; Dare	Dry	1946	Granite	10,054
West Virginia	Hope Nat. Gas 8517 Gribble, Grant dist.; Harrison	Dry	1941	Queenston	10,018
Northwest New Mexico	Southern Union 9 Barker Creek, 21-32n-14w; San Juan	Gas	1945	Pennsylvanian	9,468
Oregon	Texas 1 Cooper Mountain, 25-1s-2w; Washington	Dry	1946	.....	9,263
North Central Texas	Standard of Tex. 2 Beasley, McKerley Sur.; Cooke	Oil	1946	.....	9,158
New York	New Penn. 1 Harrington, Woodhull Twp.; Steuben	Gas	1944	Oswego	8,625
Kansas	Stanolind 1 Feathers, 15-35s-33w; Seward	Gas	1947	Crystalline	8,243
Maryland	Snee 1 Schartzer; Garrett	Dry	1941	Helderberg	8,165
South Dakota	Northern Ordnance 1 Harding School Land; Harding	Dry	1943	St. Peter	8,000
Ohio	Ohio 1-C Knowlton, Sec. 10, Indep. Twp.; Washington	Dry	1933	Silurian	7,889
Georgia	Warren & Robinson 1 Chandler, Dist. 25; Early	Dry	1944	Granite	7,320
Illinois	Pure 3 Billington, 26-1n-7e; Wayne	Dry	1940	St. Peter	7,207
Arizona	Waddell-Duncan 1 McComb, 23-13s-24e; Cochise	Dry	1950	.....	6,865
Nebraska	Union of Calif. 1 Agate; Sioux	Dry	1938	Pennsylvanian	6,846
Kentucky	Pure & Ashland 1-A Walker, 22-N-24; Webster	Dry	1949	Knox	6,686
Indiana	Continental 1 Cooper est., 13-3s-14w; Gibson	Dry	1947	Trenton	6,405
Tennessee	California 1 Beeler; Giles	Dry	1947	Granite	5,750
Iowa	Oil Development 1 Wilson; Page	Dry	1930	Cambrian	5,305
New Jersey	W. & K. 1 Mathews, Jackson Mills; Ocean	Dry	1929	Wissahickon	5,022
Missouri	Strake 1 Russell, 24-19n-11e; Pemiscot	Dry	1941	Cambrian	4,740
South Carolina	Parris Island water supply well; Beaufort	Dry	1940	Crystalline	3,454

United States Producing Depth Records

State or area—	Well and location; county	Result	Year comp.	Prod. formation	Prod. depth
Alabama	Hunt 4 Land, Gilbertown field; Choctaw	Oil	1945	Eutaw	3,624
Arkansas	Tide Water-Seaboard 1 Bandlow, Patton field; Lafayette	Oil	1944	Smackover	9,330
California	Standard of California 5 Mushrush, 7-27s-24e, Wasco field; Kern	Oil	1949	Eocene	15,530
Colorado	Texas & California 10 Unit, 26-3n-94w; Rio Blanco	Oil	1941	Morrison	7,198
East Texas	Humble 1 Curtis, Larissa field; Cherokee	Oil	1942	Pettit	10,312
East Texas Border	Magnolia 1 Orr, Fowler Sur.; Marion	Oil	1946	Travis Peak	7,577
Florida	Humble 1 Gulf Coast, Sunniland field; Collier	Oil	1943	Glen Rose	*11,626
Illinois	Kingwood 24-A Shanafelt, 20-2n-2e; Marion	Oil	1943	Trenton	4,657
Indiana	Lewis 1 Hill, 35-3s-14w; Posey	Oil	1939	McClosky	3,144
Kansas	Olson 3 Morrison, Morrison field; Clark	Oil†	1936	Viola	6,481
Kentucky	United Carbon 1 Howe; Pike	Gas	1932	Devonian	5,170
Lower Gulf Texas	Sun 1 Thompson, W. Goliad field; Goliad	Oil	1945	Wilcox	11,149
Maryland	Cumberland and Allegheny S-424 Beachy, Ryans Glade 8 dist.; Garrett	Gas	1949	Lime and chert	4,456
Michigan	Michigan Gulf 1 Bateson, Kawkawlin field; Bay	Oil†	1946	Salina	7,850
Mississippi	Gulf 1 Majors, 29-6n-11w; Jones	Oil	1948	Comanche	13,092
Missouri	Cities Service 1 Cook, Tarkio field; Atchison	Oil	1944	Bartlesville	1,444
Montana	Stanolind 1 Laerr "B," 29-9s-23e; Carbon	Oil	1948	Madison	6,860
Nebraska	Ohio 1 State, 16-13n-50w; Cheyenne	Gas	1950	Cloverly	4,825
New York	Kane 1 Lewis, West Union Twp.; Steuben	Gas	1942	Oriskany	5,228
North Central Texas	Stanolind of Texas 2 Beasley, McKerley Sur.; Cooke	Oil	1946	Ellenburger	8,940
North Louisiana	James & Co. 2 Williamson, 28-23n-8w; Claiborne	Oil	1948	Smackover	10,789
Northwest New Mexico	Southern Union 9 Barker Creek, 21-32n-14w; San Juan	Gas	1945	Pennsylvanian	9,468
Ohio	East Ohio 1 Phillips, Sec. 23, Washington Twp.; Harrison	Gas	1941	Silurian	*5,899
Oklahoma	Denver 1 School Land, 16-10n-9w, Cogar field; Caddo	Gas	1948	Hunton	14,510
Panhandle Texas	Sinclair 1 Lips, 135-C-G&M Sur.; Roberts	Oil	1949	Mississippian	9,050
Pennsylvania	American Locomotive 5 Steiner, Unity Twp.; Westmoreland	Gas	1946	Oriskany	8,014
South Central Texas	Quintana 1 Muil, Muil field; Atascosa	Oil	1946	Edwards	9,019
South Louisiana	Shell 2 Weeks Gall State Unit; Iberia	Oil	1950	Miocene	15,148
South Texas	Plymouth 1 Darby, Jourdanton field; Atascosa	Oil	1949	.....	7,410
Southeast New Mexico	Amerada 1 Rose, 35-16s-38e; Lea	Oil	1949	Devonian	12,596
Tennessee	York 2 Print Huff; Pickett	Oil	1947	Knox	1,702
Upper Gulf Coast	Meredith-Clegg & Hunt 1 Hankamer; Jefferson	Cond.	1950	Lower Frio	12,817
Utah	Carter-Stanolind 1 Ute Tribal; Uintah	Oil	1949	Basal Green River	*9,392
West Texas	General American 2-E Peck; Midland	Oil	1950	Ellenburger	13,300
West Texas	Benson-Montin 1 Peck; Midland	Oil	1950	Ellenburger	13,300
West Virginia	Ohio 1 Kendall et al, Dry Fork dist.; Tucker	Gas	1946	Oriskany	*8,410
Wyoming	Pure 1 Unit, 11-33n-84w; Natrona	Oil	1948	Frontier	14,307

*Total depth figure. †Now abandoned.

REVIEW and FORECAST

U. S. Crude Production Narrowly Misses Setting a New Record

by Polly DeArmond

CRUDE-OIL production in the United States averaged 5,414,000 bbl. daily in 1950, an increase of 380,000 bbl. daily or 7.5 per cent over the average for 1949 but slightly less than the record of 5,514,000 bbl. daily set in 1948. However, certain factors affecting crude production should be considered along with these numerical comparisons by years.

In addition to the general effects of changes in demand, both domestic and export, total crude production in a given year will depend on the volume of imports, changes in total stocks, and production of natural-gas liquids.

Total demand in 1950 was about 10.5 per cent greater than in 1949 and almost 10.1 per cent above 1948. Part of the high production in 1948 should be balanced against lower-than-normal production in other years, since 393,000 bbl. daily of this production went to crude and product storage. Inventories were reduced slightly in both 1949 and 1950. Imports increased 127,000 bbl. daily in 1949 and a little more than 200,000 bbl. daily in 1950.

Since the end of World War II, production at natural-gasoline and cycling plants has supplied a larger percentage of total demand each year. Light-hydrocarbon production was only 5.73 per cent of total demand in 1945 but was large enough to cover 7.34 per cent of total requirements in 1950.

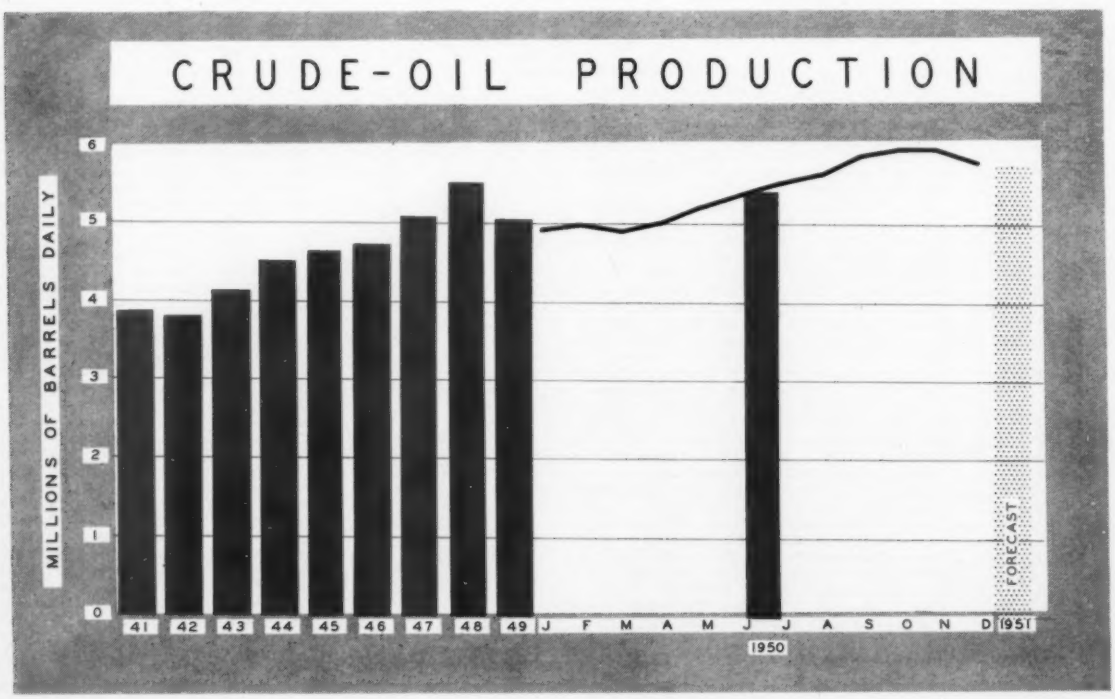
Crude production by months in 1950 varied more than a million barrels daily between the low in March of 4,879,000 bbl. daily and the high of 5,900,000 bbl. daily in October. Low demands for heating oils at the beginning of the year caused many to project production for 1950 only a little above the 1949 total. There were rumors of a probable cut in crude prices. However, before the end of the first quarter, the demand pattern for the year was more definitely established at a higher level, and production started climbing.

Out of the first eight of the major crude-producing states, there was only one shift of positions in 1950. In 1949 production in Wyoming was almost 1,000,000 bbl. less than in New Mexico because of the drop in demand for heavy crudes. The improved position of heavy crudes in 1950 helped boost Wyoming's total to better than 61,000,000 bbl. or 13,000,000 bbl. more than the year's total for New Mexico.

The 8 top states out of the 26 now reporting production accounted for 91.7 per cent of all crude produced in the United States in 1950.

Texas with about 42 per cent of total production in 1950 accounted for 65 per cent of the total increase for the year. This was to be expected since Texas took about 90 per cent of the net production cut in 1949.

Part of the 1949 cut in California heavy-crude prices was restored in 1950. Wilmington 14°-14.9° crude was cut 85 cents a barrel in 1949. In 1950, four price increases between the last of June and December 12 amounted to 60 cents, leaving the price



United States Production of Crude Oil—By States—1944-1950

(Thousands of barrels)

	1950 Prod. change	1950	1949	1948	1947	1946	1945	1944	Cum. prod. 1857-1950
Alabama	+ 276	738	462	466	396	380	181	54	2,677
Arkansas	+ 1,171	31,107	29,936	31,682	29,948	28,375	28,613	29,418	816,852
California	— 4,821	328,018	332,839	340,074	333,132	314,713	326,482	311,793	8,657,216
Colorado	— 856	23,051	23,907	17,862	15,702	11,856	4,959	2,944	147,347
Florida	+ 50	491	441	290	259	68	30	12	1,591
Illinois	— 2,480	62,103	64,583	64,808	66,459	75,297	75,210	77,413	1,494,231
Indiana	+ 1,122	10,678	9,556	6,974	6,095	6,726	4,868	5,118	200,389
Kansas*	+ 7,021	107,248	100,227	108,119	105,187	97,281	96,041	98,825	2,085,817
Kentucky†	+ 1,440	10,118	8,678	8,820	9,405	10,590	10,325	9,621	251,907
Louisiana	+ 19,720	210,435	190,715	181,458	160,128	143,669	130,566	129,207	2,602,857
Michigan	— 527	15,968	16,495	16,871	16,215	17,074	17,259	18,490	322,211
Mississippi	+ 1,090	39,056	37,966	45,761	34,925	24,298	18,775	16,337	284,984
Montana	— 930	8,219	9,149	9,382	8,742	8,825	8,397	8,627	168,586
Nebraska	+ 909	1,239	330	215	229	279	318	402	7,110
New Mexico	— 617	47,315	47,932	47,969	40,926	36,814	37,281	39,555	681,551
New York	— 78	4,170	4,248	4,621	4,762	4,863	4,648	4,697	175,929
Ohio	— 40	3,393	3,433	3,600	3,108	2,908	2,828	2,937	617,573
Oklahoma	+ 13,039	163,843	150,804	155,231	141,019	134,794	138,036	124,616	6,197,769
Pennsylvania	+ 632	12,006	11,374	12,667	12,690	12,996	12,515	14,118	1,136,953
Texas	+ 87,790	831,780	743,990	903,498	820,210	760,215	755,533	748,122	13,778,675
Utah	+ 560	1,200	640	16	.....	.....	.....	.....	1,856
Virginia	— 22	21	43	33	61	12	4	3	177
West Virginia	— 44	2,795	2,839	2,692	2,617	2,929	2,875	3,067	443,616
Wyoming	+ 14,281	61,216	46,935	55,032	44,772	38,977	35,359	32,388	915,214
Total U. S.	+138,686	1,976,208	1,837,522	2,018,141	1,856,987	1,733,939	1,711,103	1,677,764	40,993,178
Daily average	+ 380	5,414	5,034	5,514	5,088	4,751	4,688	4,584	.....

*Includes Missouri. †Includes Tennessee.

at the end of the year 25 cents less than at the beginning of 1949. Price increases for Pennsylvania Grade crude in 1950 raised postings to within 75 cents of prices paid before the first reductions in December 1948. Canyon-reef crudes from Scurry County were shifted from the West Texas schedule to postings similar to those for North Texas and the Mid-Continent.

CRUDE-OIL PRODUCTION RECORDS BY STATES

(Thousands of barrels)

	Record year		Production in record year
Alabama	1950	.....	738
Arkansas	.....	1925	77,398
California	1948	.....	340,074
Colorado	.....	1949	23,907
Florida	1950	.....	491
Illinois	.....	1940	147,647
Indiana	.....	1904	11,339
Kansas*	.....	1948	108,119
Kentucky†	.....	1946	10,590
Louisiana	1950	.....	210,435
Michigan	.....	1939	23,462
Mississippi	.....	1948	45,761
Montana	.....	1948	9,382
Nebraska	1950	.....	1,239
New Mexico	.....	1948	47,969
New York	.....	1882	6,685
Ohio	.....	1896	23,941
Oklahoma	.....	1927	277,775
Pennsylvania	.....	1891	31,424
Texas	.....	1948	903,498
Utah	1950	.....	1,200
Virginia	.....	1947	61
West Virginia	.....	1900	16,196
Wyoming	1950	.....	61,216

*Includes Missouri. †Includes Tennessee.

PRODUCTION—DAILY AVERAGE PER WELL

	Bbl. daily 1950	Producing wells 1-1-51	Daily avg. per well
Alabama	2,020	56	36.1
Arkansas	85,230	3,673	23.2
California	898,680	29,859	30.1
Colorado	63,150	775	81.5
Florida	1,350	12	112.5
Illinois	170,140	33,129	5.1
Indiana	29,250	3,958	7.4
Kansas	293,750	30,166	9.7
Kentucky	27,660	15,265	1.8
Louisiana	576,530	12,064	47.8
Michigan	43,750	3,671	11.9
Mississippi	107,000	1,619	66.1
Montana	22,520	3,135	7.2
Nebraska	3,400	142	23.9
New Mexico	129,630	5,829	22.2
New York	11,420	17,120	0.7
Ohio	9,300	22,650	0.4
Oklahoma	448,890	56,826	7.9
Pennsylvania	32,890	55,980	0.6
Texas	2,278,850	123,245	18.5
Utah	3,290	33	99.6
West Virginia	7,660	16,560	0.5
Wyoming	167,720	5,295	31.7
Miscellaneous	190	180	1.1
Total U. S.	5,414,270	441,242	12.3

REVIEW and FORECAST

136 Fields Account for 60 Per Cent of Oil Found So Far

by Philip C. Ingalls

NEARLY 60 per cent of the crude and condensate (hereafter called "oil") found in the United States to the end of 1950 can be credited to only 136 fields. These same fields have accounted for 58 per cent of the total oil produced up to January 1, 1951, have 60 per cent of the estimated remaining reserves, and during 1950 accounted for over 46 per cent of all the oil produced in the United States.

Comparison with Total

It is estimated that over 68 billion barrels of oil have been found in the United States to date and that over 40 billion barrels, 59 per cent of the total, have been found in only 136 extremely rich accumulations.

These 136 giant oil fields, each of which has estimated ultimate recoveries greater than 100 million barrels, have produced 24 billion barrels of oil. That is 58.4 per cent of the total accumulated production for the United States of some 40 billion barrels.

With an estimated remaining reserve of more than 16 billion barrels of oil these fields contain 59.8 per cent of this country's estimated proven oil reserve of about 28 billion barrels.

During 1950 these 136 giants accounted for approximately 935 million barrels of oil, or 46.5 per cent of the nation's total production of a little more than 2,000 million barrels.

Geologic Factors Differ

These giant fields produce from many variations of structural and stratigraphic traps. Some are associated with major unconformities and others are not. A majority of the fields produce principally from sandstones, but in some areas limestone fields predominate. The big fields of booming West Texas, where the greatest promise of more giants is now developing, are primarily limestone producers. Two fields now classified as giants produce from granite wash. Furthermore, these fields produce from rocks spread through the geologic time table from the Ordovician to the Tertiary-Pliocene. They produce from comparatively shallow depths to depths that are currently considered the economic limit. The physical characteristics of the oil and associated fluids produced from these outstanding accumulations vary as much as the conditions under which the oil was trapped.

Geologists ask themselves: Why have enormous quantities of oil accumulated under such varying conditions? Why has so much oil accumulated under conditions that appear to be similar to those in localities where no oil has been found in spite of rather intensive drilling? L. G. Weeks' world-wide sedimentary-basin studies have shown that oil forms in essentially closed basins and at critical depths below water level. The conclusions of Weeks' study are generally recognized as having established sound bases from which further research can progress. Some day the answers may be known and more selective wildcat areas result.

Statistics do not find oil fields, but they can be helpful in directing ideas along lines that may ultimately result in the finding of oil. Perhaps eventually a common denominator for major accumulations will be generally recognized. Right now our limited knowledge of the origin of oil and the vagaries of its accumulation do not permit us to see the similarity of conditions under which all of the known large accumulations of oil exist.

Seldom are giant fields recognized immediately after discovery. Normally these fields grow gradual-

TOTAL OIL FOUND TO JANUARY 1, 1951, GIANT FIELDS* VS. ALL FIELDS
(Millions of barrels)

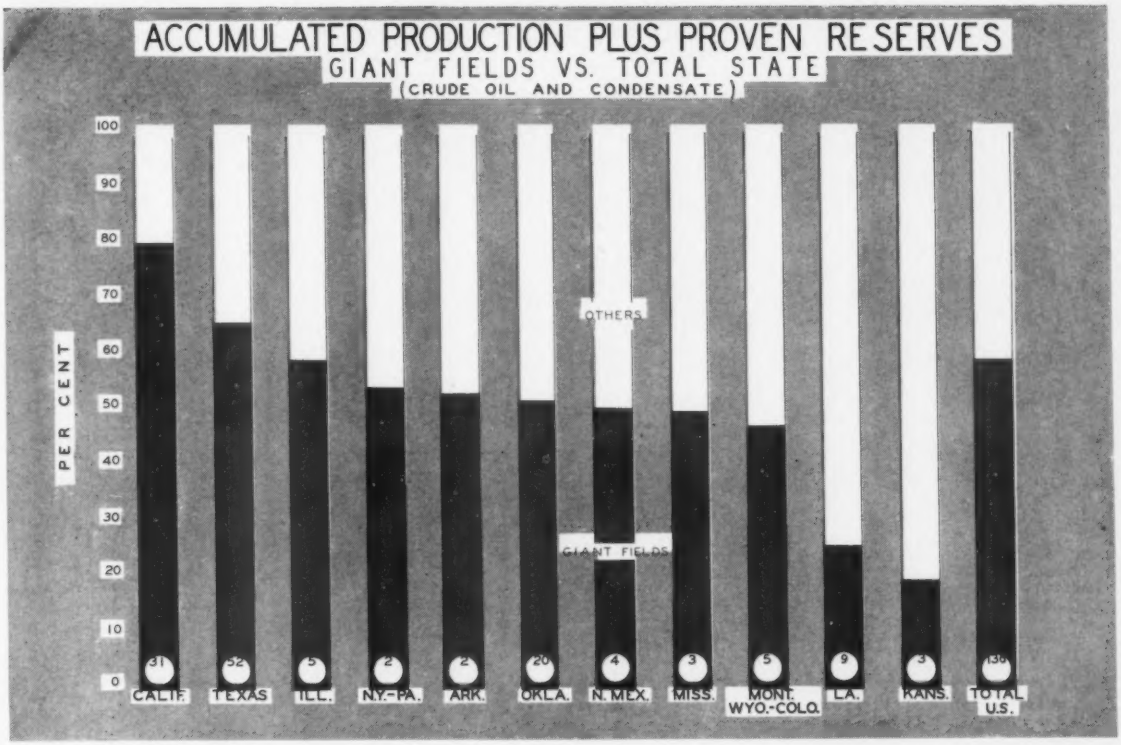
State—	No. of giants	Est. ultimate prod.† Giants	All fields	Giants' per cent
Texas	52	19,270	28,864	66.8
California	31	10,325	12,768	80.9
Oklahoma	20	4,071	7,737	52.6
Louisiana	9	1,292	4,974	26.0
Mont.-Wyo.-Colo.	5	1,080	2,281	47.3
Illinois	5	1,155	1,947	59.3
N. Y.-Pa.	2	804	1,478	54.4
New Mexico	4	670	1,291	51.9
Arkansas	2	590	1,104	53.4
Kansas	3	570	2,863	19.9
Mississippi	3	385	752	51.2
Other states	0	0	2,140	0
Total U. S.	136	40,212	68,199	59.0

*Fields with estimated ultimate production of 100 million barrels or more. †Accumulated production to January 1, 1951, plus estimated proven reserves of crude plus condensate.

1950 PRODUCTION, GIANT FIELDS* VS. ALL FIELDS
(Thousands of barrels)

State—	No. of giants	Production† Giants	Total	Per cent from giants
Texas	52	460,661	855,559	53.8
California	31	230,166	328,018	70.2
Oklahoma	20	77,164	163,843	47.1
Louisiana	9	36,857	220,299	16.7
Mont.-Wyo.-Colo.	5	35,157	92,486	38.0
Illinois	5	22,848	62,103	36.8
New Mexico	4	18,536	47,315	39.2
Kansas	3	16,811	107,220	15.7
Mississippi	3	14,576	40,203	36.3
N. Y.-Pa.	2	13,334	16,176	82.4
Arkansas	2	8,549	30,916	27.7
Other states	0	0	46,669	0
Total U. S.	136	934,659	2,010,807	46.5

*Fields with estimated ultimate production of 100 million barrels or more. †Crude plus condensate.



ly by the addition of new horizons and flank production in old "established" fields. The initial discovery dates for giant fields is summarized as follows:

Prior to 1900	5
1900 to 1909	20
1910 to 1919	19
1920 to 1929	41
1930 to 1939	38
1940 to 1949	13
Total	136

Already 13 fields opened in the last 10-year period have been recognized as containing accumulations in excess of 100 million barrels. It is safe to say that there will be more fields added to this 1940-49 count in years to come. Just how many would not be safe to say, but some idea can be developed. Frederic H. Lahee, from exploratory statistics considered typical of the 1940-49 period, concludes that 1 rank wildcat out of 1,000 finds an accumulation over 50 million barrels. This indicates that the 25,000 rank wildcats drilled during the 1940-49 period may have found 25 pools with ultimate recoveries over 50 million barrels. Now add the number of barrels to be found by outposts, new-pool wildcats, deeper and shallower-pool tests in and around these and other large accumulations discovered during the past 10 years and it appears probable that the number of giants discovered since 1940 will ultimately climb to a total comparable to those of the two preceding decades.

Production and Reserves of Giant Fields

(Thousands of barrels)

	Year of first discovery	Est. ultimate prod.	Cumulative prod. to 1-1-51	Rem. reserves 1-1-51
ARKANSAS:				
Magnolia	1938	110,000	63,932	46,068
Smackover	1922	480,000	426,801	53,199
Subtotal		590,000	490,733	99,267
CALIFORNIA:				
Cat Canyon, W.	1908	110,000	45,949	64,051
Elwood	1927	110,000	87,978	22,022
Orcutt	1903	130,000	110,567	19,433
Santa Maria Valley	1934	175,000	101,575	73,425
Ventura Avenue	1916	600,000	397,591	202,409
Brea-Olinda	1889	265,000	207,727	57,273
Coyote, W.	1909	240,000	168,800	71,200
Dominguez	1923	245,000	187,066	57,934
Huntington Beach	1920	670,000	458,720	211,280
Inglewood	1924	215,000	174,843	40,157
Long Beach	1921	830,000	751,373	78,627
Montebello	1917	180,000	155,515	24,485
Richfield	1919	140,000	114,331	25,669
Santa Fe Springs	1919	590,000	533,500	56,500
Seal Beach	1926	160,000	122,500	37,500
Torrance	1922	160,000	130,766	29,234
Wilmington	1935	960,000	506,822	453,178
Buena Vista	1909	520,000	389,940	130,060
Coalinga, Eastside	1900	340,000	275,711	64,289
Coalinga Nose	1938	360,000	167,722	192,278
Coalinga, Westside	1900	190,000	167,349	22,651
Coles Levee, N.	1938	115,000	55,385	59,615
Elk Hills	1919	650,000	204,834	445,166
Kern Front	1925	105,000	73,680	31,320
Kern River	1899	360,000	309,351	50,649
Kettleman N. Dome	1928	500,000	372,373	127,627
McKittrick	1887	105,000	96,498	8,502
Midway-Sunset	1901	925,000	760,196	164,804
Mount Poso	1926	125,000	92,036	32,964
Rio Bravo	1937	100,000	55,326	44,674
South Cuyama	1948	150,000	9,653	140,347
Subtotal		10,325,000	7,285,677	3,039,323
ROCKY MOUNTAIN AREA:				
Cut Bank & N. (Mont.)	1932	100,000	66,999	33,001

Production and Reserves of Giant Fields (Continued)

(Thousands of barrels)

	Year of first discovery	Est. ultimate prod.	Cumulative prod. to 1-1-51	Rem. reserves 1-1-51
Elk Basin (Mont.-Wyo.)	1915	195,000	55,445	139,555
Lance Creek (Wyo.)	1918	110,000	86,251	23,749
Rangely (Colo.)	1902	275,000	75,501	199,499
Salt Creek (Wyo.)	1906	400,000	339,669	60,331
Subtotal		1,080,000	623,865	456,135
ILLINOIS:				
Bridgeport	1906	285,000	244,419	40,581
Clay City-Noble	1937	185,000	133,782	51,218
Loudon	1937	210,000	157,143	52,857
Robinson	1906	175,000	158,561	16,439
Salem	1938	300,000	215,947	84,053
Subtotal		1,155,000	909,852	245,148
KANSAS:				
El Dorado	1916	255,000	204,713	50,287
Silica	1931	125,000	94,456	30,544
Trapp	1939	190,000	123,248	66,752
Subtotal		570,000	422,417	147,583
LOUISIANA:				
Caddo	1905	225,000	189,819	35,181
Delhi-Big Creek	1944	165,000	45,493	119,507
Haynesville	1921	135,000	107,421	27,579
Rodessa (Ark.-La.-Tex.)	1930	187,000	156,696	30,304
Erath	1940	125,000	41,705	83,295
Iowa	1931	100,000	68,876	31,124
Jennings	1901	120,000	102,066	17,934
Lafitte	1935	125,000	65,084	59,916
Vinton	1910	110,000	67,998	42,002
Subtotal		1,292,000	845,158	446,842
MISSISSIPPI:				
Cranfield	1943	100,000	30,716	69,284
Heidelberg	1944	110,000	24,954	85,046
Tinsley	1939	175,000	117,785	57,215
Subtotal		385,000	173,455	211,545
NEW MEXICO:				
Eunice	1928	150,000	99,566	50,434
Hobbs	1928	180,000	131,267	48,733
Monument	1934	210,000	106,782	103,218
Vacuum	1929	130,000	52,673	77,327
Subtotal		670,000	390,288	279,712
OKLAHOMA:				
Avant	1904	110,000	100,086	9,914
Bowlegs	1926	150,000	131,522	18,478
Burbank	1920	330,000	230,445	99,555
Cement	1917	100,000	60,097	39,903
Cushing	1912	425,000	385,162	39,838
Earlsboro	1924	140,000	132,230	7,770
Edmond, W.	1943	150,000	91,897	58,103
Elk City	1947	120,000	5,917	114,083
Fitts	1933	120,000	108,231	11,769
Glenn Pool	1905	275,000	241,092	33,908
Golden Trend	1945	180,000	52,269	127,731
Healdton	1913	245,000	213,341	31,659
Hewitt	1919	130,000	114,095	15,905
Little River	1927	135,000	124,035	10,965
Oklahoma City	1928	750,000	675,265	74,735
Seminole City	1926	170,000	154,850	15,150
Sholem Alechem	1923	118,000	62,856	55,144
St. Louis	1927	190,000	174,267	15,733
Tonkawa	1921	128,000	124,860	3,140
Velma	1917	105,000	50,392	54,608
Subtotal		4,071,000	3,232,909	838,091
TEXAS—RCD 1:				
Darst Creek	1928	102,000	75,819	26,181
Luling-Branyon	1921	110,000	94,011	15,989
Subtotal		212,000	169,830	42,170
TEXAS—RCD 2:				
Greta	1933	100,000	54,941	45,059
Refugio Area	1931	105,000	62,177	42,823
Tom O'Connor	1934	460,000	158,016	301,984
West Ranch	1938	200,000	64,834	135,166
Subtotal		865,000	339,968	525,032
TEXAS—RCD 3:				
Anahuac	1935	265,000	101,036	163,964
Barbers Hill	1916	120,000	91,328	28,672
Conroe	1931	600,000	293,201	306,799
Goose Creek	1908	125,000	86,180	38,820
Hastings	1934	500,000	196,457	303,543
Hull	1918	150,000	110,364	39,636
Humble	1904	160,000	135,199	24,801
Katy	1938	120,000	29,284	90,716
Old Ocean	1934	200,000	59,406	140,594
Spindletop	1901	135,000	129,952	5,048
Sour Lake	1902	110,000	88,159	21,841
Thompson	1931	325,000	152,917	172,083
Webster	1937	450,000	150,017	299,983
West Columbia	1902	140,000	111,102	28,898
Subtotal		3,400,000	1,734,602	1,665,398
TEXAS—RCD 4:				
Agua Dulce to La Gloria	1928	1,130,000	218,646	911,354
TEXAS—RCD 5:				
Van	1929	400,000	211,119	188,881
TEXAS—RCD 6:				
East Texas Field	1930	5,000,000	2,777,412	2,222,588
Hawkins	1940	500,000	118,284	381,716
Mexia	1912	108,000	102,019	5,981
Powell	1923	125,000	119,219	5,781
Talco	1936	180,000	122,437	57,563
Subtotal		5,913,000	3,239,371	2,673,629
TEXAS—RCD 7C:				
Big Lake	1923	125,000	110,939	14,061
McCamey	1925	125,000	81,077	43,923
Pegasus	1949	150,000	1,555	148,445
Subtotal		400,000	193,571	206,429
TEXAS—RCD 8:				
Cowden, N.	1930	200,000	87,797	112,203
Foster	1932	125,000	63,776	61,224
Fullerton	1942	325,000	72,393	252,607
Goldsmith	1934	350,000	113,221	236,779
Hendrick	1926	240,000	216,026	23,974
Howard-Glasscock	1926	210,000	145,156	64,844
Keystone	1930	350,000	87,668	262,332
McElroy	1926	330,000	201,189	128,811
Scurry Reef Area	1948	1,080,000	53,941	1,026,059
Seminole-San Angelo	1937	180,000	59,203	120,797
Slaughter-Levelland	1936	650,000	206,406	443,594
T.X.L.	1944	250,000	76,742	173,258
Ward, N.-Estes	1929	120,000	70,152	49,848
Wasson	1936	650,000	216,076	433,924
Yates & Smith	1926	800,000	372,644	427,356
Subtotal		5,860,000	2,042,390	3,817,610
TEXAS—RCD 9:				
Burkburnett	1912	185,000	168,049	16,951
Electra	1931	200,000	164,199	35,801
K. M. A.	1911	180,000	131,106	48,894
Subtotal		565,000	463,354	101,646
TEXAS—RCD 10:				
Badger	1926	105,000	70,111	34,889
Borger-Panlex	1926	145,000	112,467	32,533
Finley	1926	130,000	90,169	39,831
Pampa, W.	1926	145,000	98,620	46,380
Subtotal		525,000	371,367	153,633
NEW YORK-PENNSYLVANIA:				
Allegany	1879	196,000	135,090	60,910
Bradford	1871	608,000	535,709	72,291
Subtotal		804,000	670,799	133,201
TOTAL MAJOR FIELDS		40,212,000	24,029,371	16,182,629
TOTAL UNITED STATES		68,199,475	41,123,475	27,076,000
MAJOR FIELDS SHARE (per cent)		59.0	58.4	59.8

REVIEW and FORECAST

Proven Reserves of Crude and Other Liquids Continue Climb

by Philip C. Ingalls

PROVEN reserves of crude oil and natural-gas liquids in the United States continued their upward trend which has been essentially uninterrupted since estimated proven reserves for the country were first compiled. Estimates of total liquid hydrocarbons jumped 1,366 million barrels from 28,586 million to 29,952 million despite near record withdrawals. Estimated remaining reserves of dry natural gas increased 6,809 billion cubic feet to reach nearly 185 trillion.

Crude Oil

Recoverable crude-oil reserves in the United States are estimated at 26,121 million barrels. This is an increase of 1,280 million barrels over the estimates of 1 year ago. The states contributing most to this increase were Oklahoma, Texas, California, Louisiana, and Kansas. Upward revisions resulting from extensions to existing fields and performance accounted for the major part of the increases in these states.

Last year's top four states in proven reserves maintained the same relative positions. Texas with 55 per cent of the total estimate continues to lead by a large margin. California with about 16 per cent is second, Louisiana with nearly 8 per cent is third, and Oklahoma with approximately 6 per cent is fourth. All of these states are above the billion-barrel mark.

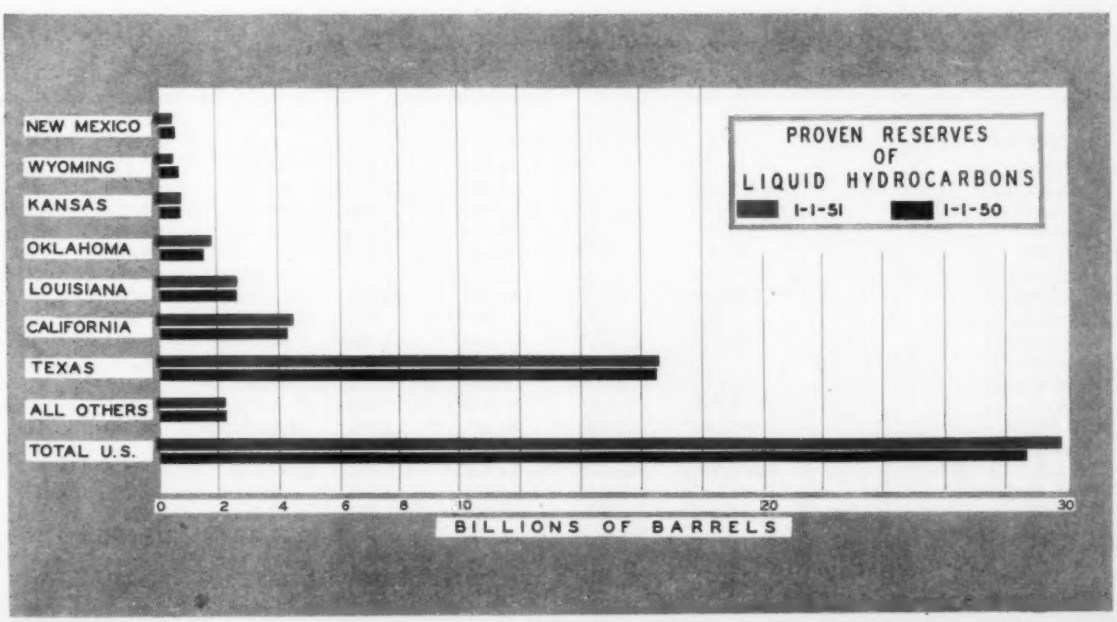
Between the billion and the 400-million-barrel marks come Kansas, Wyoming, New Mexico, Illinois, and Mississippi. Kansas reached the top of this group as a result of numerous comparatively small discoveries on the Central Kansas uplift, extensions, and performance. Also playing a part in the increase estimated for Kansas are those pools in the southeastern stripper area which have been greatly

ESTIMATED PROVEN RESERVES OF TOTAL LIQUID HYDROCARBONS IN THE UNITED STATES
(Millions of barrels)

State—	Jan. 1, 1951	Jan. 1, 1950	Change
Arkansas	343	326	+ 17
California	4,445	4,145	+ 300
Colorado	260	301	— 41
Illinois	479	430	+ 49
Kansas-Missouri	890	754	+ 136
Louisiana	2,635	2,482	+ 153
Mississippi	490	508	— 18
Montana	114	113	+ 1
New Mexico	695	656	+ 39
Oklahoma	1,786	1,390	+ 396
Texas	16,557	16,277	+ 280
Wyoming	745	740	+ 5
Others	513	464	+ 49
Total United States	**29,952**	**28,586**	**+1,366**

DRY NATURAL GAS
(Billions of cubic feet)

Total United States	**184,945**	**178,136**	**+6,809**



Estimated Proven Reserves of Crude Oil in the United States

(Thousands of barrels)

State—	Proven reserves 1-1-50	Extensions 1950 discoveries	Extensions and revisions	1950 production	Proven reserves As of 1-1-51	Year's change	Per cent of U. S.
Alabama	3,000	100	2,638	738	5,000	+ 2,000	....
Arkansas	281,000	10,000	27,423	29,423	289,000	+ 8,000	1.1
California total	3,825,000	17,000	609,018	328,018	4,123,000	+ 298,000	15.8
Coastal	625,000	3,000	134,850	62,850	700,000	+ 75,000	2.7
Los Angeles	1,150,000	4,000	209,860	118,860	1,245,000	+ 95,000	4.8
San Joaquin	2,050,000	10,000	264,308	146,308	2,178,000	+ 128,000	8.3
Colorado	271,000	10,000	—12,949	23,051	245,000	— 26,000	0.9
Florida	4,000	0	491	491	4,000	0	....
Illinois	417,000	10,000	88,103	62,103	453,000	+ 36,000	1.7
Indiana	60,000	10,000	—9,322	10,678	50,000	— 10,000	0.2
Kansas-Missouri	672,000	50,000	165,248	107,248	780,000	+ 108,000	3.0
Kentucky-Tennessee	50,000	3,000	15,118	10,118	58,000	+ 8,000	0.2
Louisiana	1,912,000	45,000	279,696	201,696	2,035,000	+ 123,000	7.8
Michigan	89,000	1,000	1,968	15,968	76,000	— 13,000	0.3
Mississippi	448,000	4,000	20,774	37,774	435,000	— 13,000	1.7
Montana	105,000	500	12,719	8,219	110,000	+ 5,000	0.4
Nebraska	With Kansas	10,000	1,239	1,239	10,000	+ 10,000	0.1
New Mexico	575,000	12,000	70,276	47,276	610,000	+ 35,000	2.3
New York	57,000	0	6,170	4,170	59,000	+ 2,000	0.2
Ohio	28,000	0	2,393	3,393	27,000	— 1,000	0.1
Oklahoma	1,186,000	60,000	453,843	163,843	1,536,000	+ 350,000	5.9
Pennsylvania	103,000	0	15,006	12,006	106,000	+ 3,000	0.4
Texas total	14,010,000	315,400	849,508	817,908	14,357,000	+ 347,000	55.0
East	3,186,000	10,000	97,133	143,133	3,150,000	— 36,000	12.1
Gulf Coast	3,080,000	80,000	227,328	192,328	3,195,000	+ 115,000	12.2
North	527,000	40,000	96,812	78,812	585,000	+ 58,000	2.2
Panhandle	272,000	400	47,724	33,124	287,000	+ 15,000	1.1
Southwest	1,827,000	40,000	—41,016	85,984	1,740,000	— 87,000	6.7
West	5,118,000	145,000	421,527	284,527	5,400,000	+ 282,000	20.7
Utah	5,000	0	16,200	1,200	20,000	+ 15,000	0.1
West Virginia-Virginia	35,000	0	5,816	2,816	38,000	+ 3,000	0.1
Wyoming	705,000	60,000	—8,784	61,216	695,000	— 10,000	2.7
Total United States	24,841,000	618,000	2,612,592	1,950,592	26,121,000	+1,280,000	100.0

stimulated by water flooding. Wyoming has several new fields; outstanding is the Sussex-Meadow Creek area, which will undoubtedly require substantial upward revisions as development progresses. Sizable upward revisions also appear promising for New Mexico where exploratory work in the Northwestern Shelf area is beginning to pay dividends. Illinois stays up in this bracket by continuing to bring in

Estimated Proven Reserves of Natural-Gas Liquids in the United States

Includes Condensate, Natural Gasoline, and Liquefied Petroleum Gases

(Thousands of barrels)

State—	Proven reserves 1-1-50	Extensions 1950 discoveries	Extensions and revisions	1950 production	Proven reserves As of 1-1-51	Year's change	Per cent of U. S.
Arkansas	45,000	150	12,890	4,040	54,000	+ 9,000	1.4
California	320,000	3,400	26,860	28,260	322,000	+ 2,000	8.4
Colorado	25,000	500	—10,100	400	15,000	—10,000	0.4
Illinois	13,000	50	16,610	3,660	26,000	+13,000	0.7
Kansas	82,000	100	31,400	3,500	110,000	+28,000	2.9
Kentucky	15,000	50	—300	1,750	13,000	— 2,000	0.3
Louisiana	570,000	15,000	44,600	29,600	600,000	+30,000	15.7
Michigan	1,000	20	300	120	1,200	+ 200	....
Mississippi	60,000	800	—2,900	2,900	55,000	— 5,000	1.4
Montana	8,000	20	—4,180	240	3,600	— 4,400	0.1
New Mexico	81,000	1,000	8,500	5,500	85,000	+ 4,000	2.2
Ohio	2,000	10	—310	100	1,600	— 400	0.1
Oklahoma	204,000	3,000	62,400	19,400	250,000	+46,000	6.5
Pennsylvania	2,000	100	630	230	2,500	+ 500	0.1
Texas	2,267,000	60,000	—11,600	115,400	2,200,000	—67,000	57.4
West Virginia	15,000	300	29,400	4,700	40,000	+25,000	1.0
Wyoming	35,000	500	15,800	1,300	50,000	+15,000	1.3
Others	.....	.....	3,000	400	2,600	+ 2,600	0.1
Total United States	3,745,000	85,000	223,000	221,500	3,831,500	+86,500	100.0

RATIO OF RESERVES TO PRODUCTION
(Total Liquid Hydrocarbons)

	Thousands of barrels		
	1950 Production	Reserves 1-1-51	Ratio 1-1-51
Texas	933,308	16,557,000	17.7
New Mexico	52,776	695,000	13.2
California	356,278	4,445,000	12.5
Mississippi	40,674	490,000	12.0
Wyoming	62,516	745,000	11.9
Louisiana	231,296	2,635,000	11.4
Oklahoma	183,243	1,786,000	9.7
Kansas	110,748	890,000	8.0
Illinois	65,763	479,000	7.3
Others	135,490	1,230,000	9.1
Total U. S.	2,172,092	29,952,000	13.8

ESTIMATED PROVEN RESERVES OF NATURAL GAS IN THE UNITED STATES
(Billion cubic feet at 60° F. and 14.65 psia.)

	1-1-51	1-1-50	Changes
Arkansas	860	870	— 10
California	9,900	10,400	— 500
Colorado	1,200	775	+ 425
Illinois	220	220	.....
Indiana	25	20	+ 5
Kansas	15,000	14,290	+ 710
Kentucky	1,350	1,350	.....
Louisiana	26,000	24,980	+1,020
Michigan	200	160	+ 40
Mississippi	2,500	2,440	+ 60
Montana	850	830	+ 20
New Mexico	6,500	6,380	+ 120
New York	65	63	+ 2
Ohio	640	613	+ 27
Oklahoma	11,900	11,900	.....
Pennsylvania	900	520	+ 380
Texas	103,000	98,900	+4,100
Utah	60	25	+ 35
West Virginia	1,750	1,800	— 50
Wyoming	2,000	1,600	+ 400
Others	25	.....	+ 25
Total United States	184,945	178,136	+6,809

numerous small but profitable producers. The estimate for proven remaining reserves in Mississippi is down again as production from the big older fields exceeded estimated discoveries and upward revisions.

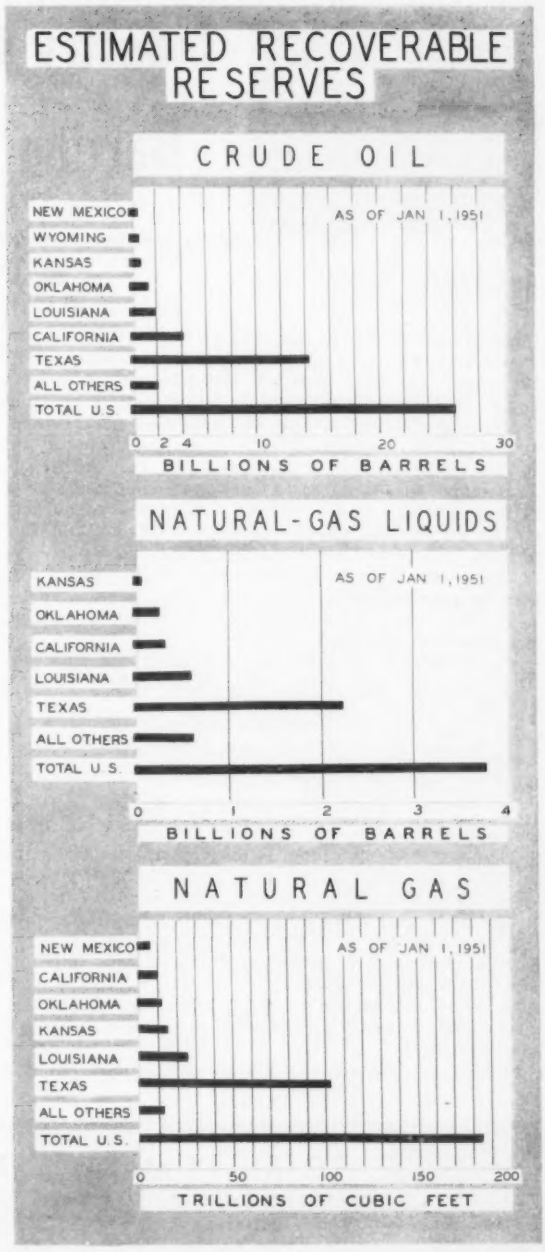
Natural Gas Liquids

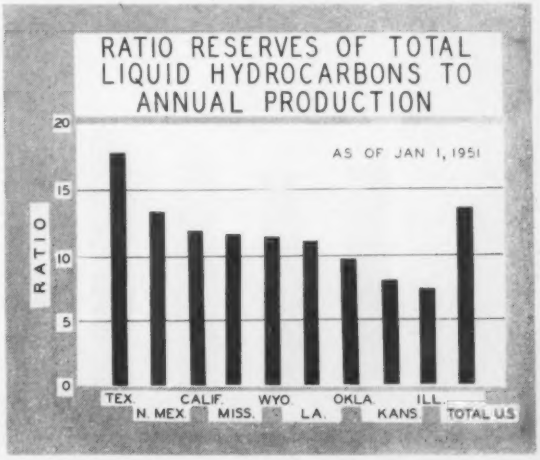
These figures are estimates of hydrocarbon liquids that are gaseous in the reservoir but are obtainable by condensation or absorption. They include condensate separated on the lease, at scrubbers, and at cycling and natural-gasoline plants. In addition, some allowance has been made for liquids considered available by processing still greater quantities of the total wet gas now being produced.

Recoverable reserves of natural-gas liquids in the United States are estimated at 3,831 million barrels. This is an increase of 86 million barrels over the estimates of 1 year ago.

Suggested Reference

Before drawing any conclusions from these proven-reserve figures, it is strongly suggested that you study Frederic H. Lahee's "Our Oil and Gas Reserves—Their Meaning and Limitations," which was published in the November 30 issue of the Journal on page 69.





REVIEW and FORECAST

Industry Can Meet 1951 Demands, Barring Restrictive Regulations

by E. T. Knight*

IN some respects, the hazards of forecasting for the coming year are even greater than usual. The tenseness of the present international situation could lead almost overnight to widespread war, to a mere prolongation of the uncertainties of the past year or even, perhaps, to the laying of foundations for real peace. Each of these results, none of which is susceptible to statistical analysis, would have a different effect on the size of military demand, the extent and magnitude of economic controls, and the pattern of civilian consumption.

The present forecasts are based on the following specific assumptions:

1. The demand for heating fuels is based on the requirements of normal weather.
2. Industrial activity will continue its upward trend in 1951 and there will be no major strikes during the year.
3. Petroleum products will not be rationed.
4. Stocks of crude oil and petroleum products at the end of 1951 will be above current levels but will not be burdensome.
5. Military requirements for petroleum products to be supplied by the domestic industry, whether for consumption at home or abroad, are included in domestic demand. These requirements, the largest uncertain factor in this forecast, have been estimated on the basis that there will be increased military and defense activities at least until the middle of 1951, with a continuance throughout the second half at near the midyear level.

A brief discussion of the factors considered in forecasting demand for individual petroleum products follows:

*Petroleum economist, The Atlantic Refining Co.

AS THE AUTHOR SEES IT—

Total demand for all oils in 1951 is forecast at approximately 7,115,000 bbl. a day, 5.3 per cent above 1950, divided as follows:

1. Domestic demand up 6.0 per cent to 6,853,500 bbl. a day.
2. Exports down 11.2 per cent to 261,400 bbl. a day.

The forecast demand, if realized, is expected to be met by domestic production of:

1. Crude oil at 5,769,000 bbl. a day, 6.8 per cent above 1950; and,
2. Other liquid hydrocarbons at 527,500 bbl. a day, 6.6 per cent above 1950.

Motor Fuel

The volume of motor-fuel consumption, estimated at 6.7 per cent above 1950 and 52 per cent above 1941, is based on a forecast of the number of motor vehicles in operation and average consumption per vehicle, as shown in Tables 3 and 4. Total domestic consumption of gasoline will be up 8.1 per cent from 1950 and exports somewhat below the previous

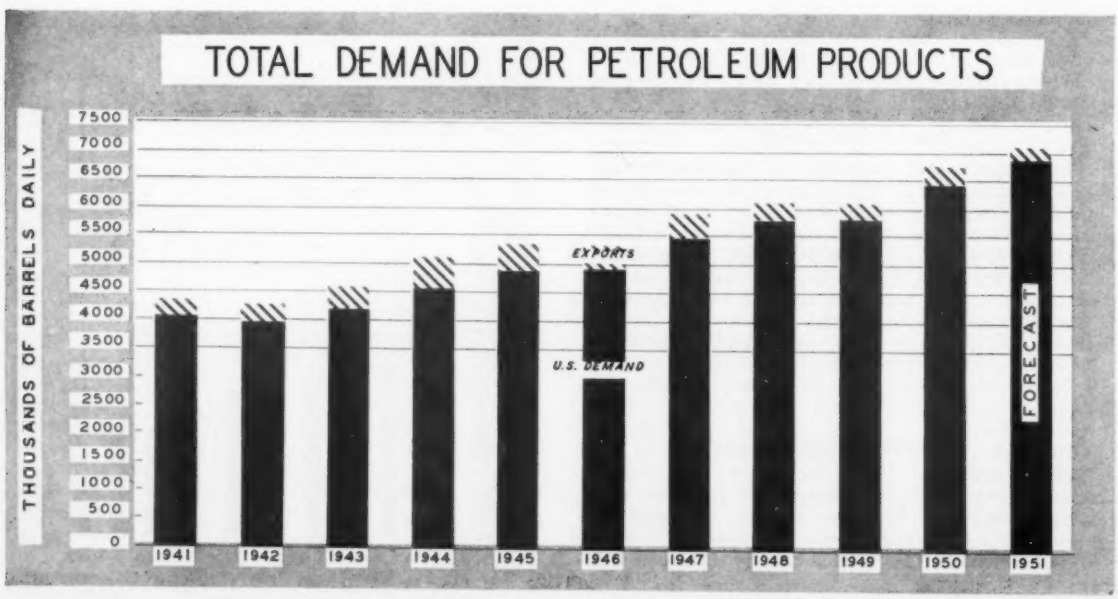


Table 1—Demand and Supply of Petroleum Products

(Barrels daily)

	1950* Quantity	1950* Per cent increase over 1949	1951 forecast Quantity	1951 forecast Per cent increase over 1950
Motor fuel	2,795,900	7.1	3,010,400	7.7
Domestic	2,731,100	9.2	2,951,700	8.1
Exports	64,800	—40.1	58,700	—9.4
Kerosine	323,300	12.2	344,300	6.5
Domestic	318,100	13.1	339,100	6.6
Exports	5,200	—25.1	5,200	0.0
Distillate fuels	1,110,200	19.1	1,205,900	8.6
Domestic	1,076,300	19.3	1,173,400	9.0
Exports	33,900	1.5	32,500	—4.1
Residual	1,537,000	10.4	1,535,700	—0.1
Domestic	1,492,200	10.0	1,499,500	0.5
Exports	44,800	29.4	36,200	—19.2
Lubricants	144,500	14.6	144,500	0.0
Domestic	105,900	17.1	108,300	2.3
Exports	38,600	8.3	36,200	—6.2
Wax	11,900	32.2	11,600	—2.5
Domestic	8,600	39.2	8,300	—3.5
Exports	3,300	17.0	3,300	0.0
L.P.G. domestic (including L.R.G.)	230,500	24.4	265,000	15.0
Asphalt and road oil domestic	173,000	10.4	168,200	—2.8
Miscellaneous products and losses	291,100	—1.8	299,300	2.8
Domestic	277,100	—1.5	285,000	2.9
Exports	14,000	—7.6	14,300	2.1
Crude	140,900	13.0	130,000	—7.7
Domestic (as such and losses)	51,200	50.0	55,000	7.4
Exports	89,700	—1.0	75,000	—16.4
Demand for all oils	6,758,300	10.4	7,114,900	5.3
Domestic	6,464,000	11.6	6,853,500	6.0
Exports	294,300	—10.1	261,400	—11.2
Stock changes	—17,300	...	+55,600	...
Crude	—8,100	...	+20,600	...
Products	—9,200	...	+35,000	...
Total new supply	6,741,000	10.3	7,170,500	6.4
Imports	841,900	31.2	873,500	3.8
Crude	488,800	15.2	512,500	4.8
Products	353,100	62.7	361,100	2.3
Domestic supply	5,899,100	7.8	6,296,900	6.7
Crude production	5,404,100	7.2	5,769,400	6.8
Natural gasoline	495,000	15.7	527,500	6.6
Crude run to stills	5,738,900	7.7	6,111,300	6.5

*Fourth quarter estimated.

year. Table 5 shows domestic consumption by categories of use, as forecast for 1951 and for previous years.

Passenger-car production in 1951 is expected to be 1,200,000 less and trucks 230,000 less than in 1950, a record-breaking year.

Middle Distillates

Domestic demand for middle distillates—kerosine, heating, and diesel fuels—will approximate 1,512,500 bbl. daily in 1951, 8.5 per cent or 118,100 bbl. daily more than in 1950. Demand at that level will be 128 per cent more than in 1941 while demand for diesel-fuel consumption will be four times the 1941 level.

Table 6 shows demand for middle distillates by products and Table 7 shows demand by categories of consumers as forecast for 1951 and as realized in previous years.

Railroad demand for diesel fuel will average about 148,000 bbl. a day in 1951, nearly 20 times the rate of consumption in 1941.

The sale of domestic home-heating units in 1951 is expected to be somewhat lower than the level established in 1950, partly because of restrictions on home building and partly because of increased competition from natural gas for home heating. Nevertheless the number of oil-heating units in use will reach an all-time high. Details are given in Table 8.

(Lack of information regarding stocks of heating oils in secondary storage makes it difficult to appraise the adequacy of supply to meet peak demands at critical periods. If a method of determining such stocks is available, it would be helpful to the oil and associated industries in future planning.)

Residual Fuels

Domestic demand for residual fuel is expected to average about 1,500,000 bbl. a day in 1951. The

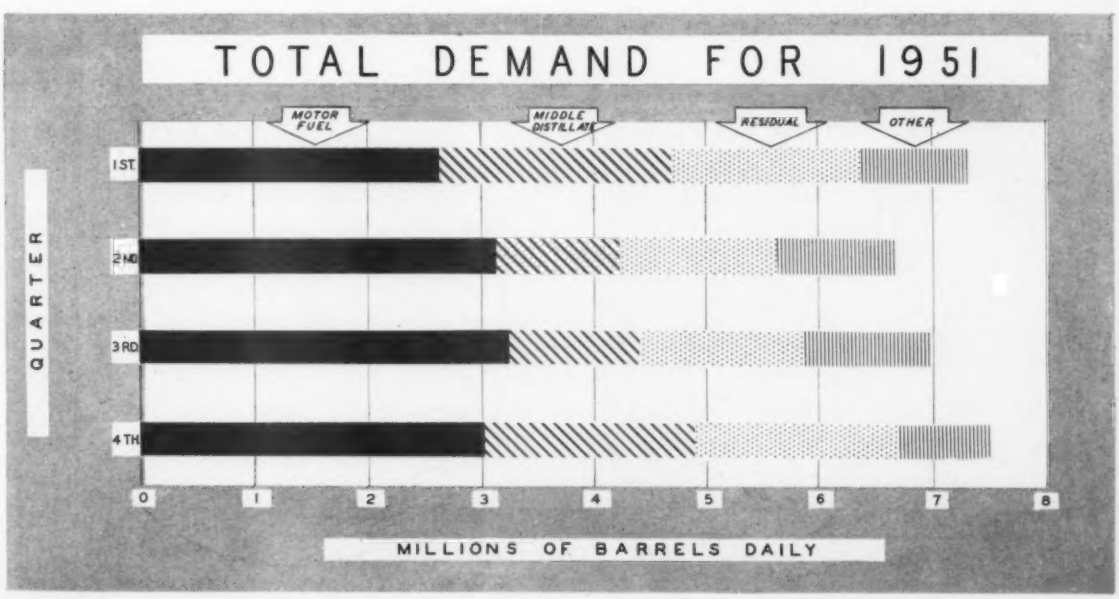


Table 2—Demand and Supply of Petroleum Products—1951 Quarterly Forecast

(Barrels daily)

	First quarter		Second quarter		Third quarter		Fourth quarter	
	Quantity	Per cent increase over 1950	Quantity	Per cent increase over 1950	Quantity	Per cent increase over 1950	Quantity	Per cent increase over 1950
Motor fuel	2,630,000	10.5	3,140,000	7.4	3,260,000	7.5	3,005,000	5.8
Domestic	2,570,000	10.7	3,080,000	8.0	3,200,000	7.8	2,950,000	6.3
Exports	60,000	4.2	60,000	—16.0	60,000	—7.7	55,000	—15.4
Kerosine	469,000	8.7	225,000	7.8	255,000	5.0	430,000	4.6
Domestic	463,000	8.9	220,000	7.1	250,000	5.1	425,000	4.9
Exports	6,000	82.4	5,000	52.0	5,000	0.4	5,000	—16.7
Distillate fuels	1,580,000	10.5	880,000	4.8	908,000	6.2	1,460,000	10.6
Domestic	1,545,000	10.8	850,000	5.0	878,000	7.0	1,425,000	10.9
Exports	35,000	—2.2	30,000	—2.4	30,000	—12.3	35,000	0.0
Residual	1,695,000	—1.2	1,405,000	—0.3	1,435,000	—0.2	1,610,000	1.4
Domestic	1,650,000	—1.5	1,370,000	0.6	1,400,000	0.5	1,580,000	2.5
Exports	45,000	—5.1	35,000	—26.2	35,000	—22.1	30,000	—33.3
Lubricants	140,000	6.5	145,000	2.0	150,000	—3.3	143,000	—4.0
Domestic	100,000	6.1	110,000	5.6	115,000	—0.8	108,000	—0.9
Exports	40,000	7.5	35,000	—8.0	35,000	—10.5	35,000	—12.5
Wax	12,000	14.6	11,000	—1.7	11,000	—16.1	12,000	—7.7
Domestic	8,000	7.1	8,000	—5.3	8,000	—15.7	9,000	0.0
Exports	4,000	33.3	3,000	9.5	3,000	—17.1	3,000	—25.0
L.P.G. domestic (inc. L.R.G.)	280,000	21.3	240,000	14.4	250,000	13.0	290,000	11.5
Asphalt and road oil, domestic	86,000	7.3	180,000	—2.5	275,000	—3.6	130,000	—7.1
Misc. products and losses	295,000	13.8	305,000	4.2	305,000	—6.6	292,000	2.5
Domestic	280,000	12.3	290,000	4.1	290,000	—6.3	280,000	3.7
Exports	15,000	52.4	15,000	6.7	15,000	—12.3	12,000	—20.0
Crude	125,000	11.4	135,000	—10.6	135,000	—13.7	125,000	—12.6
Domestic (as such and losses)	55,000	36.9	55,000	8.6	55,000	—6.1	55,000	0.0
Exports	70,000	—2.8	80,000	—20.4	80,000	—18.2	70,000	—20.5
Demand for all oils	7,312,000	7.8	6,666,000	4.6	6,984,000	3.8	7,497,000	4.9
Domestic	7,037,000	8.0	6,403,000	5.6	6,721,000	4.7	7,252,000	5.9
Exports	275,000	4.3	263,000	—14.7	263,000	—14.3	245,000	—17.8
Stock changes	—143,000	....	+393,000	....	+202,000	....	—230,000	....
Crude	+33,000	....	+50,000	....	....	....	....	....
Products	—176,000	....	+343,000	....	+202,000	....	—230,000	....
Total new supply	7,169,000	15.6	7,059,000	9.3	7,186,000	2.5	7,267,000	—0.1
Imports	900,000	12.2	835,000	0.6	855,000	2.5	905,000	0.6
Crude	510,000	11.4	500,000	3.7	520,000	3.2	520,000	2.0
Products	390,000	13.4	335,000	—3.7	335,000	1.4	385,000	—1.3
Domestic supply	6,269,000	16.0	6,224,000	10.5	6,331,000	2.5	6,362,000	—0.2
Crude production	5,739,000	16.6	5,709,000	10.6	5,806,000	2.3	5,822,000	—0.4
Natural gasoline	530,000	10.1	515,000	10.2	525,000	5.2	540,000	1.5
Crude run to stills	6,071,000	12.8	6,004,000	9.9	6,171,000	2.8	6,197,000	1.6

*Fourth quarter estimated.

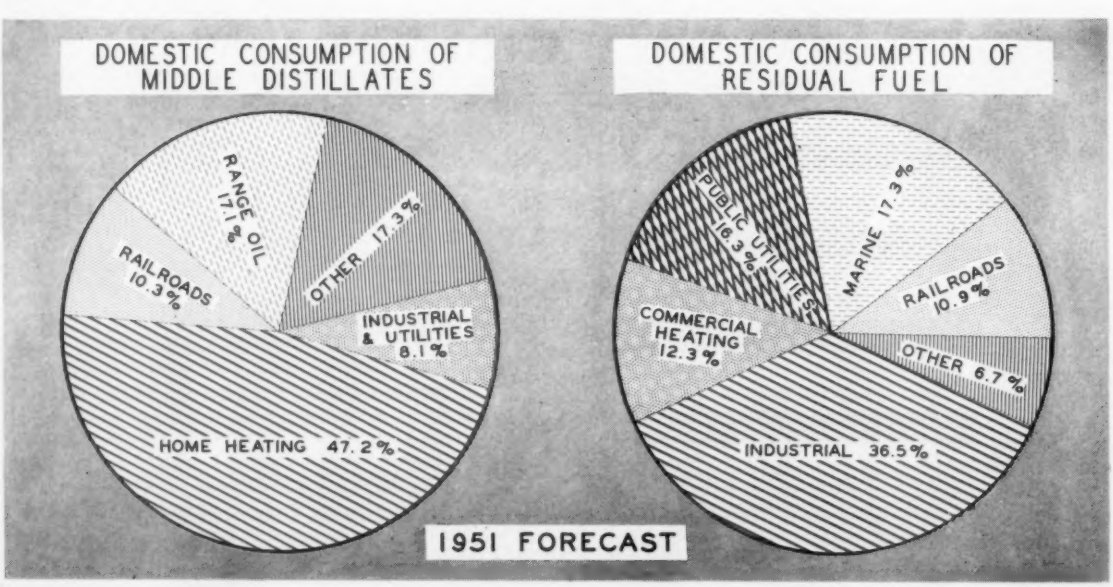


TABLE 3—PASSENGER CARS IN UNITED STATES
(In Thousands)

	Registration end of year	Vehicles exempt from registration	Factory sales domestic market	Misc. supply	Units scrapped	Average in use
1941	29,524	75	3,682	...	1,528	28,521
1946	28,100	113	2,005	11	*404	27,003
1947	30,719	126	3,297	10	676	29,529
1948	33,261	137	3,676	28	1,151	32,122
1949	36,293	141	4,963	8	1,935	34,916
1950†	39,565	145	5,900	10	2,634	38,072
1951	41,850	150	4,700	10	2,420	40,855

*Laid up cars returned to service (net). †Estimated.

TABLE 3A—TRUCKS IN UNITED STATES
(In Thousands)

	Registration end of year	Vehicles exempt from registration	Factory sales domestic market	Misc. supply	Units scrapped	Average in use
1941	4,859	210	743	...	514	4,954
1946	5,726	260	754	139	*16	5,532
1947	6,512	296	988	60	226	6,397
1948	7,227	328	1,173	1	427	7,182
1949	7,693	335	1,003	1	532	7,791
1950†	8,214	340	1,160	1	632	8,290
1951	8,640	344	930	...	500	8,769

*Laid up trucks returned to service (net). †Estimated.

TABLE 3B—BUSES IN UNITED STATES
(In Thousands)

	In use end of year	Sales of buses	Units scrapped	Average in use
1941	146	17	13	144
1946	162	24	21	161
1947	175	39	26	168
1948	183	32	24	179
1949	189	19	13	186
1950*	193	22	18	191
1951	198	20	15	196

*Estimated.

TABLE 3D—ESTIMATED DIESEL POWER VEHICLES INCLUDED IN AVERAGE IN USE
(In Thousands)

	Trucks	Buses
1946	12	16
1947	14	20
1948	17	26
1949	20	28
1950*	26	33
1951	34	36

*Estimated.

forecast of residual-fuel demand is the most difficult to make, and the resultant volume forecast is the most uncertain, of all the forecasts included in this article, for two reasons:

1. The requirements of the Armed Forces are subject to variations which cannot be forecast because they are dependent on developments in the international situation not governed by economic factors.

2. The effect of the growth of natural-gas consumption in the area of relatively high current demand for residual fuels will depend on the completion of transportation facilities to that area.

Demand by categories of consumers is shown in Table 9, as forecast for 1951 and as realized for earlier years.

TABLE 4—FUELS CONSUMED BY HIGHWAY VEHICLES
(Barrels daily)

	1949	1950*	1951	% of 1941
Motor fuel:				
Passenger cars	1,474,160	1,637,660	1,757,300	147
Trucks	552,880	596,600	630,600	172
Buses	39,660	39,240	38,800	126
Total motor fuel	2,066,700	2,273,500	2,426,700	152
Diesel fuel:				
Trucks	3,860	5,180	6,550	...
Buses	12,550	13,820	15,290	...
Total diesel fuel	16,410	19,000	21,840	...

*Estimated.

Lubricants

Domestic demand for lubricating oil is expected to average about 108,300 bbl. a day or 2.3 per cent above the 1950 domestic demand which was 17.1 per cent above the previous year. The relatively low increase in demand is based on the fact that there was considerable consumer stockpiling of industrial lubricants in 1950 and on the belief that the forecast increase in industrial production in 1951 will be in lines which may not require comparable increases in the use of lubricants. Details are shown in Table 10.

Change in Relative Demand for Individual Products

Since 1941, there have been significant changes in the relative importance of demand for individual petroleum products. For example, demand for motor fuel and residual fuels has decreased as a percentage of total demand while the proportion of middle distillates has increased. Table 11 gives details.

Conclusion

If the demand for petroleum products in 1951, as forecast in the foregoing text and tables, is substantially realized, the oil industry will be able to meet its obligations if it is not burdened with major restrictive regulations.

I would like to point out that the upward trend in supply and demand forecast for the coming year is more important than the absolute figures used. But, since trends can be expressed most usefully by numerical data, the tables presented with this forecast are offered for the reader's analysis as approximations of the probable supply of and demand for petroleum during 1951.

TABLE 5—DOMESTIC CONSUMPTION OF GASOLINE
(Barrels daily)

	1949	1950†	1951
Highway consumption of motor fuel (Table 4)	2,066,700	2,273,500	2,426,700
Agricultural nonhighway	189,650	192,500	197,300
Industrial use of motor fuel	65,750	70,000	71,200
Miscellaneous*	42,000	36,500	54,100
Total motor fuel	2,364,100	2,572,500	2,749,300
Aviation gasoline*	93,130	102,700	142,100
Industrial naphthas	44,030	55,900	60,300
Total	2,501,260	2,731,100	2,951,700

*Includes government uses. †Estimated.

TABLE 6—COMPONENT PARTS OF MIDDLE DISTILLATE DOMESTIC DEMAND
(Barrels daily)

	1949	1950*	1951	% of 1941
Kerosine	281,300	318,100	339,100	178
Distillate fuels	657,720	798,900	865,900	217
Diesel fuels	240,870	277,400	307,500	410
Total	1,179,890	1,394,400	1,512,500	228

*Estimated.

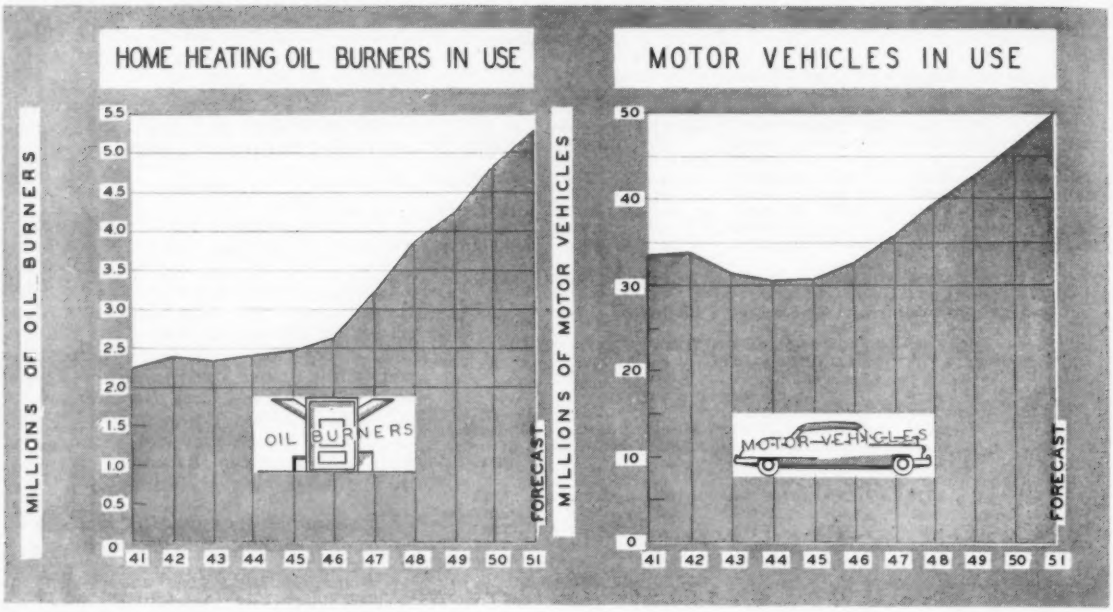


TABLE 7—DOMESTIC CONSUMPTION OF MIDDLE DISTILLATES

(Barrels daily)

	1949	1950†	1951	% of 1941
Range oil	215,130	240,510	257,620	204
Home heating oil	521,610	653,410	714,470	216
Agricultural:				
Tractor	23,700	22,300	21,640	...
Other (inc. tobacco curing)	6,710	6,990	6,990	...
Railroad:				
Distillates	6,990	6,850	6,850	114
Diesel	98,780	126,000	147,950	1,962
Public utilities:				
Distillates	16,720	15,340	15,070	185
Diesel	17,670	15,890	15,070	303
Marine:				
Distillates	2,020	2,050	2,190	207
Diesel	33,930	34,660	36,440	126
Trucks and buses (Table 4):				
Diesel	16,410	19,000	21,840	...
Industrial (inc. Oil Co.):				
Distillates	51,420	51,520	53,560	243
Diesel	32,350	36,850	39,590	420
Miscellaneous (inc. Government):				
Distillates	94,720	118,000	126,630	(*)
Diesel	41,730	45,030	46,590	(*)
Total	1,179,890	1,394,400	1,512,500	228

*1941 data not comparable with later years. †Estimated.

TABLE 8—OIL BURNERS FOR HOME HEATING

(In Thousands)

	In use end of year	Domestic sales	Indicated scrapped	Average in use
1941	2,402	333	66	2,269
1946	2,821	492	188	2,659
1947	3,650	888	59	3,236
1948	3,976	455	131	3,813
1949	4,491	571	96	4,233
1950*	5,105	750	136	4,798
1951	5,480	550	175	5,293

*Estimated.

TABLE 9—RESIDUAL FUELS

(Barrels daily)

	1949	1950*	1951	% of 1941
Commercial heating	165,520	180,600	184,700	145
Railroads	173,880	157,000	163,800	74
Public utilities	219,430	250,600	243,800	265
Industry (inc. Oil Co.)	488,440	557,200	546,600	151
Marine	244,830	252,600	260,300	168
Misc. (inc. Government)	64,940	94,200	100,300	109
Total	1,357,040	1,492,200	1,499,500	143

*Estimated.

TABLE 10—DEMANDS FOR LUBRICANTS (INCLUDING GREASES)

(Barrels daily)

	1949	1950*	1951	% of 1941
Automotive motor oils	57,040	60,400	63,200	155
Aviation motor oils	1,130	1,500	2,370	365
Total motor oils	58,170	61,900	65,570	159
Mobile diesel-engine lubes	3,560	4,100	4,600	495
Industrial lubes	31,900	43,570	41,800	436
Domestic consumption	93,630	109,570	111,970	130
Exports	35,630	38,600	36,200	133
Total demand	129,260	148,170	148,170	131
Supply from other than petroleum sources	3,200	3,670	3,670	116
Supply required from petroleum processing	126,060	144,500	144,500	131

*Estimated.

TABLE 11—DOMESTIC DEMAND FOR SPECIFIC PETROLEUM PRODUCTS AS PER CENT OF TOTAL DOMESTIC DEMAND

	1941	1949	1950*	1951
Motor fuel	44.93	43.18	42.25	43.07
Middle distillates	16.31	20.37	21.57	22.07
Residual fuel	25.81	23.43	23.08	21.88
Lubricants and waxes	2.16	1.67	1.77	1.70
L.P.G.	0.74	3.20	3.57	3.86
Miscellaneous and losses	10.05	8.15	7.76	7.42
Total	100.00	100.00	100.00	100.00

*Estimated.

REVIEW and FORECAST

Imports Show Big Jump in 1950, Particularly in Residual Fuels

by Henry D. Ralph

ANOTHER big jump in imports of petroleum into continental United States took place in 1950, and a further increase is indicated for 1951. Thus continues a sharply upward trend evident for several years—514,000 bbl. daily in 1948, 641,000 in 1949, 844,000 in 1950, and probably more than 900,000 in 1951.

Imports were about 12.5 per cent of total demand in 1950, and will be about 13 per cent in 1951. *(The ratio of imports to total demand during the past 30 years was shown in a chart in The Oil and Gas Journal, January 26, 1950, page 193).* The forecast of imports during 1951 is based on current plans of leading importers which are subject to change with international events.

Postwar Shift in Imports Origin

Noteworthy is the postwar shift in origin of crude imports. Shipments from the Middle East have grown rapidly, but may have reached a peak. In 1947 only 1,058 bbl. daily, or 0.4 per cent of total crude imports, came from the Middle East. In 1948 it was 63,336 bbl. daily, or 18 per cent, and in 1949 it was 99,625 bbl. daily, or 23.5 per cent. Preliminary reports indicate that the 1950 receipts of 112,000 bbl. daily represented 22.8 per cent of crude imports.

Import taxes on crude and products were doubled, effective January 1, 1951, except for a quantity equal to 5 per cent of United States refinery runs, and quotas have been assigned various shipping countries *(The Oil and Gas Journal, December 28, 1950, page 33).* This change may have little effect on total imports but may cause some shifts in sources.

In addition to the over-all increase, the postwar years have seen a big gain in imports of petroleum products, as shown in the table on this page. Residual fuel oil, almost entirely from the Caribbean, constitutes the bulk of imported products. This is because our Atlantic Seaboard requires far more resid than can be produced in East Coast refineries or brought from the Gulf Coast by water.

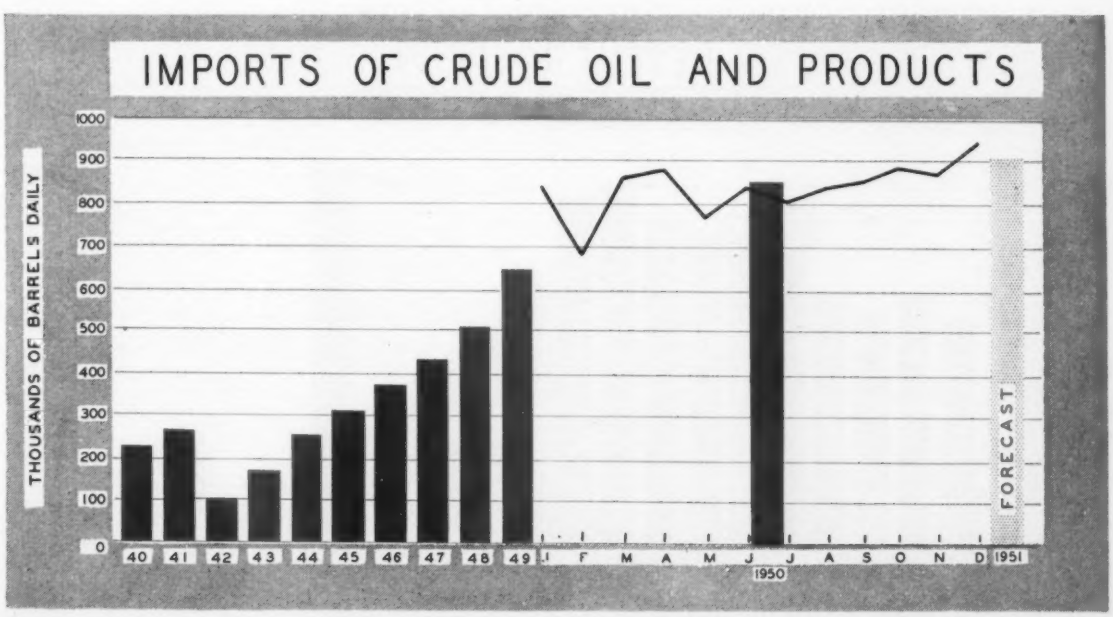
Imports of resid were supplemented by the shipment of about 20,000,000 bbl. from California between the middle of 1949 and the middle of 1950, but now the West Coast needs all the resid its refineries produce. Total United States production of resid during the first 10 months of 1950 was 1.3 per cent less than in the same period of 1949.

IMPORT-EXPORT TRENDS

(Thousands of barrels daily)

	Imports			Exports		
	Crude	Products	Total	Crude	Products	Total
1935	88	56	144	141	212	353
1936	89	67	156	137	223	360
1937	75	82	157	184	290	474
1938	72	77	149	212	319	531
1939	91	71	162	198	320	518
1940	117	112	229	141	215	356
1941	139	127	266	91	207	298
1942	34	64	98	93	227	320
1943	38	136	174	113	298	411
1944	122	130	252	94	477	571
1945	203	108	311	90	411	501
1946	236	141	377	116	303	419
1947	267	170	437	127	324	451
1948	353	161	514	109	259	368
1949	423	218	641	91	237	328
1950*	490	354	844	90	204	294
1951†	530	374	904	75	186	261

*Ten months actual, 2 months estimated. †Forecast.



REVIEW and FORECAST

Refinery Operations Reach New All-Time High in 1950

by John C. Casper

REFINERY operations, following the general upward trend in demand for petroleum products, reached a new all-time high in 1950. Crude runs to stills averaged 5,728,000 bbl. daily, representing increases of 7.5 per cent over 1949 and 3.2 per cent over the previous record set in 1948.

The growth curve of refinery operations has had a sharp upward turn in the past 10 years. Refinery runs first exceeded 1,000,000 bbl. daily in 1920 and climbed to 2,000,000 bbl. daily by 1925. However, the daily average for 1932 was only 2,240,000 bbl. and did not reach 3,000,000 bbl. until 1937. The average for 1943 was almost 4,000,000 bbl. daily and by 1947 had passed the 5,000,000-bbl. mark. All published forecasts for 1951 estimate runs at better than 6,000,000 bbl. daily.

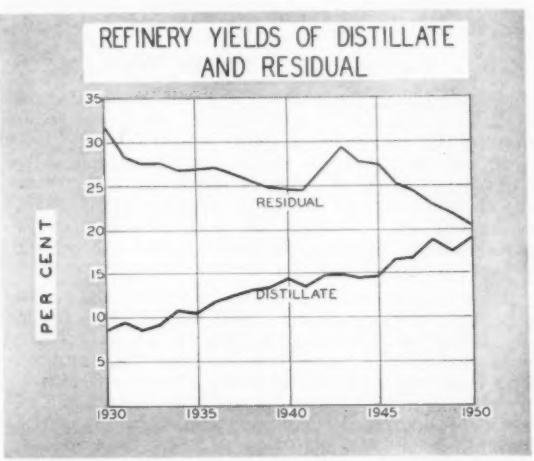
Since the end of World War II, the gain in petroleum refining has been at a faster rate than expansion of manufacturing in general. Refinery runs increased 20.8 per cent between 1946 and 1950 compared with a gain of 12.9 per cent for all manufacturing.

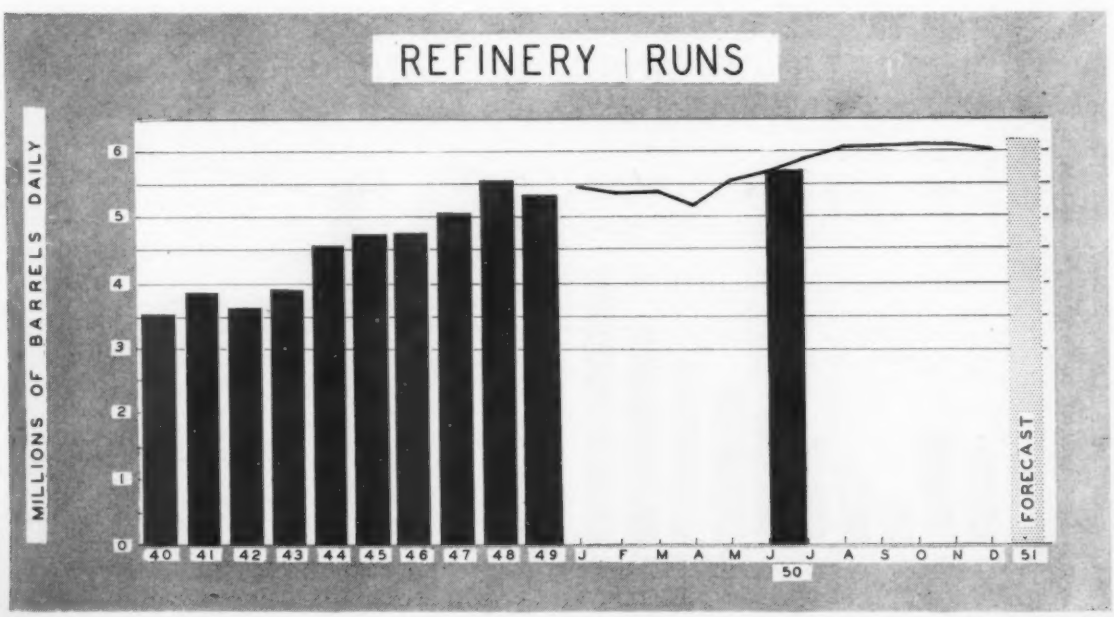
Variations in product demand and localized strikes during the year resulted in an unequal distribution of refining increases by districts. Runs at East Coast refineries represented 15.8 per cent of the national total in 1950 compared with 14.4 per cent in 1949. Refiners in Texas Gulf district accounted for 22.8 per cent of all crude in 1950, a relative decrease from the 24.1 per cent for the previous year.

Runs of foreign crude in 1950 were about 483,000 bbl. daily or 8.4 per cent of total input compared with 427,000 bbl. daily or 8.0 per cent of total runs in 1949.

Most of the gains in refinery runs for 1950 came in the last half of the year. The crude-charge rate decreased in the first 4 months of the year from 5,483,000 bbl. daily in January to 5,193,000 bbl. daily in April. The daily average jumped to 5,535,000 bbl. in May and exceeded 6,000,000 bbl. in each of the last 5 months of the year with a peak of about 6,081,000 bbl. in November. The increase between April and November was 17.1 per cent.

Changes in refinery runs by months in 1950 fol-





DISTRICTS PER CENT OF TOTAL UNITED STATES REFINERY RUNS

	1924	1934	1944	1945	1946	1947	1948	1949	1950
East Coast	21.0	19.2	15.4	15.9	16.0	16.0	15.5	14.4	15.8
Appalachian	3.4	4.0	3.4	3.3	3.2	3.3	2.8	2.9	2.9
Illinois, Indiana, etc.	8.8	13.3	16.7	16.0	16.2	16.3	16.2	17.2	18.1
Oklahoma, Kansas, Missouri	12.4	10.6	8.0	8.1	8.0	8.3	8.1	8.0	8.5
Texas Inland	4.8	6.9	5.0	4.9	4.5	4.6	4.4	4.1	3.6
Texas Gulf	14.6	20.0	24.6	23.5	24.5	23.6	24.9	24.1	22.8
Louisiana Gulf	5.7	4.6	5.0	5.8	7.0	7.5	7.8	8.1	8.2
North Louisiana, Arkansas	2.0	2.1	1.7	1.6	1.3	1.3	1.4	1.4	1.2
Rocky Mountain	4.1	1.8	2.5	2.7	2.8	2.8	2.9	3.3	3.5
California	23.2	17.5	17.7	18.2	16.5	16.3	16.0	16.5	15.4
Total United States	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

lowed the pattern set by changes in demand for refined products. Heating-oil demand was abnormally low in January and the first half of February. Domestic demand for all oils in January was 323,000 bbl. daily less than in December 1949. Refinery runs were reduced to provide for normal stock reductions. This period of below-normal demand was followed by high demands in March and April when cold weather boosted requirements for heating oils and gasoline consumption was increasing rapidly despite the cold weather.

Domestic demand in April was 12 per cent greater than in April 1949 compared with a 6 per cent gain indicated in January. When demand in May remained at a level that represented a gain of 16 per cent over the same month in 1949, it was evident that demands for the year would move back up to the normal trend curve and that higher runs would be required to meet these demands.

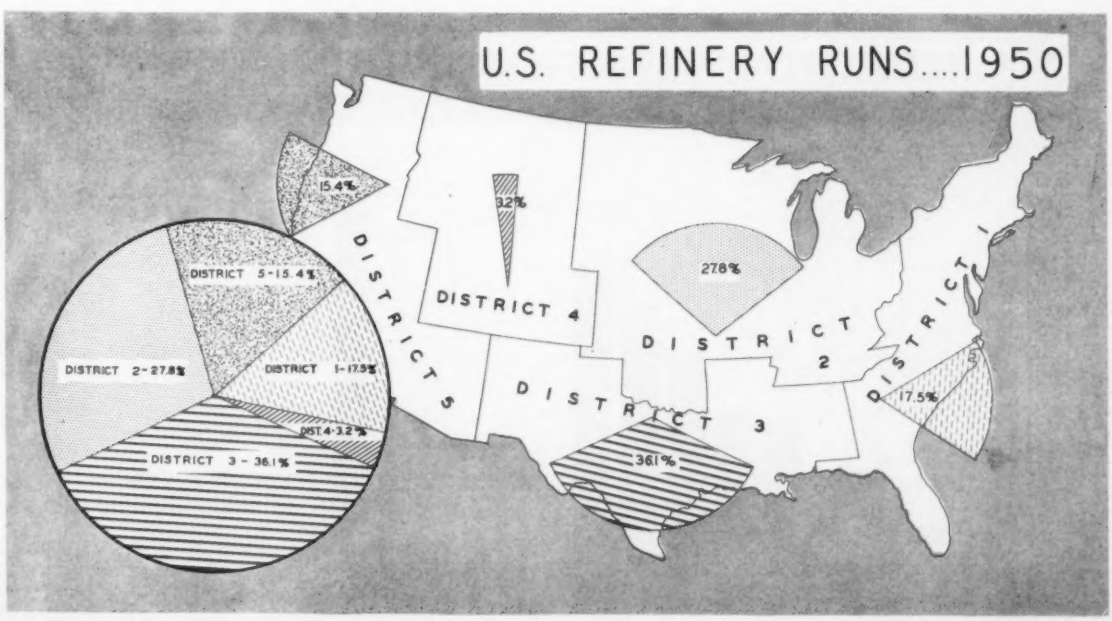
REFINERY TRENDS

	Runs, th. bbl. daily	Yields (per cent) Gasoline	Distillate	Residual
1930	2,541	42.0	8.8	31.4
1931	2,451	44.3	9.4	28.3
1932	2,240	44.7	8.5	27.5
1933	2,360	43.7	9.2	27.6
1934	2,454	43.4	10.6	26.8
1935	2,646	44.2	10.4	26.9
1936	2,920	44.1	11.8	27.0
1937	3,242	43.9	12.4	26.4
1938	3,192	44.3	13.0	25.3
1939	3,191	45.0	13.1	24.7
1940	3,536	43.1	14.2	24.4
1941	3,861	44.2	13.4	24.3
1942	3,655	39.8	14.7	26.9
1943	3,917	37.1	14.8	29.2
1944	4,551	39.4	14.4	27.7
1945	4,711	40.9	14.5	27.3
1946	4,740	39.6	16.6	24.9
1947	5,075	40.2	15.8	24.2
1948	5,549	40.3	18.7	22.9
1949	5,330	43.7	17.4	21.7
1950	5,728	43.3	18.7	20.2

Higher demands for refined products brought advances in prices from the abnormal lows of 1949. Refinery realization from a barrel of crude dropped so low in 1949 that many plants could not operate profitably. Calculated realization at Mid-Continent refineries decreased from a peak of $3.96 in 1948 to $2.97 in June 1949. While the price increases in 1950 were not enough to bring realization back to the 1948 level, they did make it possible for some refiners to operate plants that had been shut down in 1949. Mid-Continent realization for September 1950 was calculated at $3.51 per barrel of crude input.

Shifts in refinery yields as well as changes in price produce variations in total realization from a barrel of crude. Over a period of years, realization has been increased by a gradual trend toward maximizing production of the higher-priced products and reducing output of residual fuel which generally sells for less than the crude from which it is made. Residual yields for 1950 are estimated at 20.2 per cent compared with 21.7 per cent for 1949 and 29.2 per cent in 1942 when high military demands as well as increased shipping and industrial requirements called for additional residual production.

Percentage increases in distillate demands in 1950 were greater than increases for gasoline, resulting in better relative gains in distillate prices. These changes are reflected in the slight drop in percentage yield of gasoline from 1949 to 1950 and the gain of 1.3 percentage points in distillate yields.



REVIEW and FORECAST

Series of New Highs Reached by Light-Hydrocarbons Industry

by John C. Casper

NATURAL-GASOLINE and cycling-plant operators set another all-time production record in 1950 with a daily average output of 20,833,000 gal. and kept intact the record of higher production each year that has been running since 1941 when the Bureau of Mines expanded its production reports to include L.P.G.

This new average for the year is only one of a series of records for the light-hydrocarbon division of the petroleum industry, since 1950 was a year of "firsts" for natural-gasoline and cycling-plant operators.

Production passed the 20,000,000-gal.-daily level in January and was above this mark in all but 4 months of the year.

The increase in average production for the year, amounting to 2,859,000 gal. daily, was not only a record increase in volume but also a record percentage increase. Production in 1950 represented a gain of 15.9 per cent over 1949 compared with the previous record of 14.2 per cent in 1947.

Production of L.P.G. in January and February was greater than natural-gasoline production in these months. L.P.G. production has been increasing rapidly, but January was the first month for which the total was greater than that for natural gasoline.

Daily average production at all plants in Texas exceeded 10,000,000 gal. in 1950 for the first time. Texas production for the year averaged 10,752,000 gal. daily and accounted for 51.6 per cent of the country's total compared with 49.4 per cent in 1949. The volumetric increase for Texas was 1,875,000 gal. daily or 65.6 per cent of the total national gain.

Completion of two large natural-gasoline plants in Kansas resulted in a production increase for that state of 31.8 per cent.

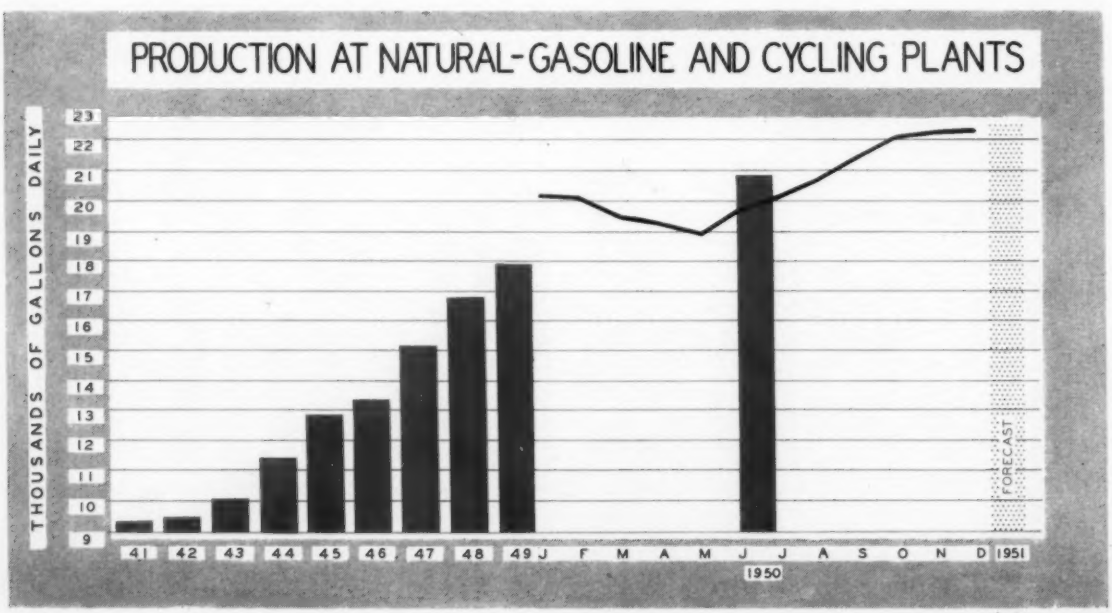
Total plant production of finished gasoline and naphtha averaged about 2,150,000 gal. daily for the year, a new record and the first time daily average output has been above 2,000,000 gal.

Natural-gasoline plants accounted for most of the production increases in 1950. These plants produced 2,623,000 gal. daily more than in 1949 compared with a total increase of 2,859,000 gal. daily. Thus, natural-gasoline plants, with about 75 per cent of total production, reported almost 92 per cent of the increase for the year.

Output at cycling plants increased 4.8 per cent for the year compared with 20 per cent increase for natural-gasoline plants and 15.9 per cent for all plants. Cycling-plant production represented 24.6 per cent of the total in 1950 compared with 27.2 per cent in both 1948 and 1949.

L.P.G. production at all plants gained 1,618,000 gal. daily, the greatest volumetric increase on record but slightly less percentagewise than the gain in 1947 because of the lower base on which the 1947 gain was calculated.

The phenomenal gains in production of L.P.G. in the past decade have been made possible by a three-dimensional expansion program. First, more natural gas is being processed. Early in 1950, The Oil and Gas Journal's survey of plants indicated a total capacity of 29,600,000 gal. daily at 516 plants with enough additional capacity under construction to bring the total above 30,000,000 gal. daily before



TOTAL PRODUCTION OF NATURAL-GASOLINE AND CYCLING PLANTS
(Thousands of gallons daily)

	1947	1948	1949	*1950
Appalachian area	442	468	488	583
Ill., Ky., Mich.	621	593	571	567
Kansas	272	294	308	406
Oklahoma	1,223	1,283	1,452	1,686
Texas	7,231	8,275	8,877	10,752
Arkansas	258	259	261	271
Louisiana	1,723	1,939	2,093	2,333
Mississippi	55	129	138	148
New Mexico	310	356	462	589
Other Rocky Mountain	159	194	208	245
California	2,915	3,047	3,116	3,253
Total	15,209	16,837	17,974	20,833

*Ten months actual, 2 months estimated.

PRODUCT OUTPUT AT NATURAL-GASOLINE AND CYCLING PLANTS
(Thousands of gallons daily)

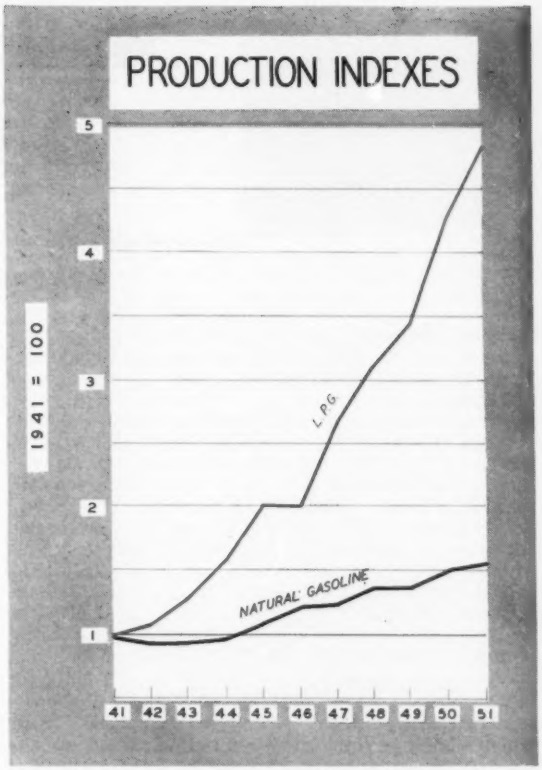
	Natural gasoline	L.P.G.	Other products	Total	Per cent increase
1941	6,050	1,938	1,316	9,304	....
1942	5,674	2,119	1,794	9,587	3.0
1943	5,796	2,495	1,802	10,093	5.3
1944	5,979	3,198	2,303	11,480	13.7
1945	6,846	3,872	2,170	12,888	12.3
1946	7,372	3,861	2,085	13,318	3.3
1947	7,517	5,183	2,509	15,209	14.2
1948	8,140	6,036	2,661	16,837	10.7
1949	8,240	6,626	3,108	17,974	6.8
*1950	9,080	8,244	3,509	20,833	15.9
†1951	9,500	9,300	3,800	22,600	8.5

*Ten months actual, 2 months estimated. †Forecast.

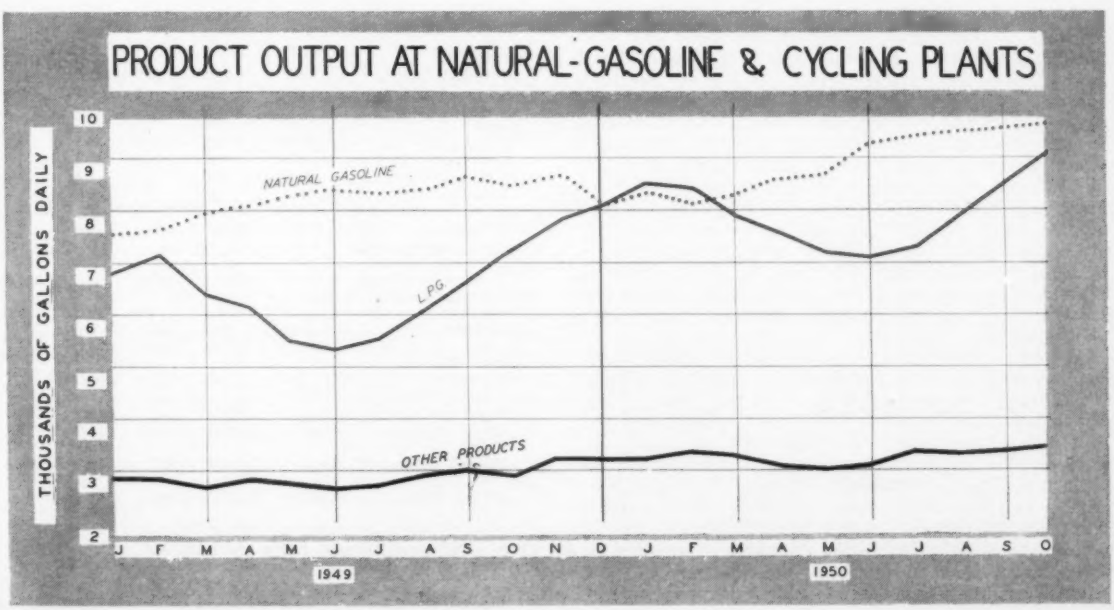
the end of the year. Total capacity at 729 plants in 1940 was less than 12,000,000 gal. daily.

Second, almost all of the plants constructed in the past decade have been equipped for production of L.P.G. The newer plants were designed to remove larger percentages of propane from the gas processed.

Third, the trend is recent years has been toward the removal of more of the light ends from natural gasoline and the marketing of L.P.G. and a lower vapor-pressure natural or even finished gasoline. Also, more propane is being separated and sold as such rather than as part of a commercial mixture. Propane production increased 41.6 per cent in the first 10 months of 1950 compared with a gain of 26.8 per cent in the output of commercial butane-propane mixtures.



Natural-gasoline price changes in 1950 from the low to the high represented a difference of 72 per cent. Group 3 posting for Grade 26-70 natural at the first of 1950 was 5.875 cents a gallon, but four rapid reductions in February brought the price down to 4 cents. At the time of the last reduction, there was a spread of 5.375 cents between Grade 26-70 natural and the low of postings for Group 3 regular gasoline, a record in price differentials for these products. Natural prices did not reach the year's opening level until the end of July, but four additional increases brought postings to 6.875 by December 15.



REVIEW and FORECAST

World Production Headed for 12 Million Barrels Daily

by Dahl M. Duff

IF the expansion in world crude-oil production continues at its 1950 rate, total output will reach approximately 12,500,000 bbl. daily by the end of this year.

This possibility is predicated on another 12 per cent gain during the year. Even assuming a more modest 8 per cent increase, world production will exceed the 12,000,000-bbl. daily mark in the closing months of 1951.

Remarkable and to some extent unexpected increases in crude production were made last year in practically all the world's major oil countries. World production for the year is estimated to have averaged 10,397,000 bbl. daily. From 9,510,000 bbl. daily in January 1950, the total had risen to approximately 11,190,000 bbl. daily by October.

During the year, the industry increased its crude production by some 1,073,000 bbl. daily. This represents an 11.5 per cent gain over the previous year. Some industry forecasters, who had watched the production total show an only negligible increase from 1948 to 1949, had anticipated a considerably smaller gain during last year. The sharp upward trend during the summer foreshadowed a year markedly different from 1949.

While United States production showed a 7.2 per cent increase in 1950, the gain in output of foreign fields was more than double this. Total foreign production during 1950 rose to approximately 4,993,000 bbl. daily, or 16 per cent over 1949. Excluding the 872,000 bbl. daily estimated to have been produced in Russia and its Eastern European satellites, foreign production amounted to 4,121,000 bbl. daily, up 18.6 per cent from 1949.

Factors Contributing to Increase

While a number of factors contributed to the sharp increase in production last year, the basic one was the rapid expansion in petroleum consumption both in the United States and abroad. Freeing of rationing controls on motor fuel in the United Kingdom and elsewhere in the sterling area, along with a general improvement in the currency and trading position of many countries, added to the foreign demand.

The industry's supply ability outside the United States was augmented last year by the completion of several major facilities. Of particular importance in the Eastern Hemisphere was the opening of the trans-Arabian pipe-line system from the Persian Gulf to the Eastern Mediterranean. This line and its tankage for crude and terminal bunkers required more than 10,500,000 bbl.

Another important pipe-line system which went into operation late in the year was that from Alberta's fields in the Edmonton area to the head of the Great Lakes at Superior, Wis. The line provides the first major outlet outside the prairie provinces for western Canada's growing production potential. In Latin America, the completion of new pumping facilities on the Andian National pipe line which carries De Mares and Yondo crude to the Caribbean allowed Colombian output to reach a new all-time record just under 100,000 bbl. daily in the latter part of the year.

World Crude-Oil Production

(Thousands of barrels daily)

Country—	1950*	1949	1940	Per cent increase 1950 over 1949	Per cent increase 1950 over 1940
Western Hemisphere					
Argentina	63.0	61.9	56.5	1.8	11.5
Bolivia	1.7	1.9	0.8	—10.5	112.5
Brazil	1.0	0.3	....	234.0	....
Canada	77.0	57.6	23.5	33.7	227.7
Chile	1.6	0.4	....	†	....
Colombia	93.0	81.2	69.8	14.5	33.2
Cuba	0.3	0.4	0.3	—25.0	....
Ecuador	7.2	7.2	6.4	...	12.5
Mexico	200.0	166.4	120.4	20.2	66.0
Peru	40.3	40.5	33.1	—0.5	21.8
Trinidad	56.3	55.1	60.8	2.2	—7.4
Venezuela	1,496.0	1,321.5	508.0	13.2	194.5
Total	2,037.4	1,794.4	879.6	13.5	131.6
Western Europe and Africa					
France	2.9	1.1	1.4	164.0	107.0
French Morocco	0.8	0.3	....	166.7	....
Germany	21.6‡	15.6‡	20.2	38.5	6.9
Italy	0.2	0.2	0.2	...	....
Netherlands	13.8	11.8	....	17.0	....
Egypt	44.5	43.2	17.8	3.0	150.0
United Kingdom	0.9	0.9	0.3	...	200.0
Total	84.7	73.1	39.9	15.9	112.3
Middle East					
Bahrein	30.2	30.1	19.3	0.3	56.5
Iran	661.0	561.8	181.0	17.7	265.2
Iraq	137.0	86.3	66.4	58.7	106.3
Kuwait	343.0	247.0	....	38.9	....
Qatar	34.0	2.0	....	†	....
Saudi Arabia	548.0	476.7	13.9	15.0	3,840.0
Turkey	0.8	0.3	....	166.7	....
Total	1,754.0	1,404.2	280.6	24.9	525.0
Far East					
British Borneo	83.0	69.2	19.3	19.9	330.0
Burma	1.5	0.5	21.2	200.0	—92.9
China	2.0	1.4	....	42.9	....
India	5.1	5.3	6.3‡	—3.8	‡
Indonesia	140.0	115.8	170.0	20.9	—17.6
Japan	5.3	3.8	7.2	39.5	—26.4
New Guinea	4.8	4.7	....	2.1	....
Pakistan	3.2	2.0	§	60.0	§
Total	244.9	202.7	224.0	20.8	9.3
Total foreign, less Russia and Eastern Europe	4,121.0	3,474.4	1,424.1	18.6	189.4
Russia and Eastern Europe					
Austria	23.0	18.0	7.7	27.8	198.7
Romania	85.0	84.5	108.0	0.6	—21.3
Russia	740.0	685.0	608.0	8.0	21.7
Other Eastern Europe	23.8	19.0	20.4	25.3	16.7
Total	871.8	806.5	744.1	8.1	17.2
Total foreign	4,992.8	4,280.9	2,168.2	16.6	130.3
United States	5,404.0	5,043.0	3,697.3	7.2	46.2
World total	10,396.8	9,323.9	5,865.5	11.5	77.3

* 1950 partially estimated. †Commercial production in Chile and Qatar did not begin until late in 1949. ‡Western Germany only. §Pakistan included in India prior to 1947.

New refining facilities were inaugurated throughout Europe, but 1951 will see the completion of still more of the new plants which are under construction in France, Italy, and the United Kingdom. In 1950, California-Texas Oil Co., Ltd., brought on stream its new and reconstructed refineries in Spain, the Netherlands, and France. Additions and improvements were made by various other European refiners. In addition to meeting expanded requirements, the new plants promise a general increase in motor-fuel quality. Gasoline octane in Europe is in general now controlled at about 70-72, but this may be upgraded before the end of the year.

The Korean war, rearmament, and the tense international situation also promoted oil demand and production during the last year. Although the direct requirements in Korea were relatively small, shipping and generally increased military activity provided a greater increment of the heavier demand. There was a minor amount of stockpiling of petroleum products in a few countries in the latter part of the year.

The fact that the arms program in the United States and Europe will continue indefinitely into the future points to further expansions in world petroleum output. The possibility of an industrial slump such as occurred in 1949 has been virtually forgotten under present conditions.

Even aside from the stimulus of rearmament, there is plenty of potential for increased consumption of petroleum abroad. While Europe's economy continues to hinge heavily on coal as the principal source of fuel and power, in 1949 this continent, excluding Russia, consumed an average of only 48 gal. per person compared to 575 gal. in the United States. Latin America's consumption averaged 76 gal. per person.

Strike Pulls Venezuela's Production Down

The production development of outstanding importance in the Western Hemisphere outside the United States in 1950 was the marked expansion in output in Venezuela, the world's largest oil-exporting country. A strike in May pulled production down to 1,235,000 bbl. daily, but a succession of new all-time records were established in subsequent months. Venezuela's production depends to a considerable extent on the demand for heavy fuel oil. With production of practically all producers running at all-time high levels and in many cases up to potential, plans were made during the year for a stepup in exploratory and drilling work from the depressed levels to which these activities had been reduced in 1949.

In Mexico, total crude production in 1950 was below some of the more optimistic predictions that had been made, but the country's output still showed a marked gain of more than 20 per cent over 1949. Further increases to meet higher domestic demand as well as export requirements are anticipated by Petroleos Mexicanos during 1951.

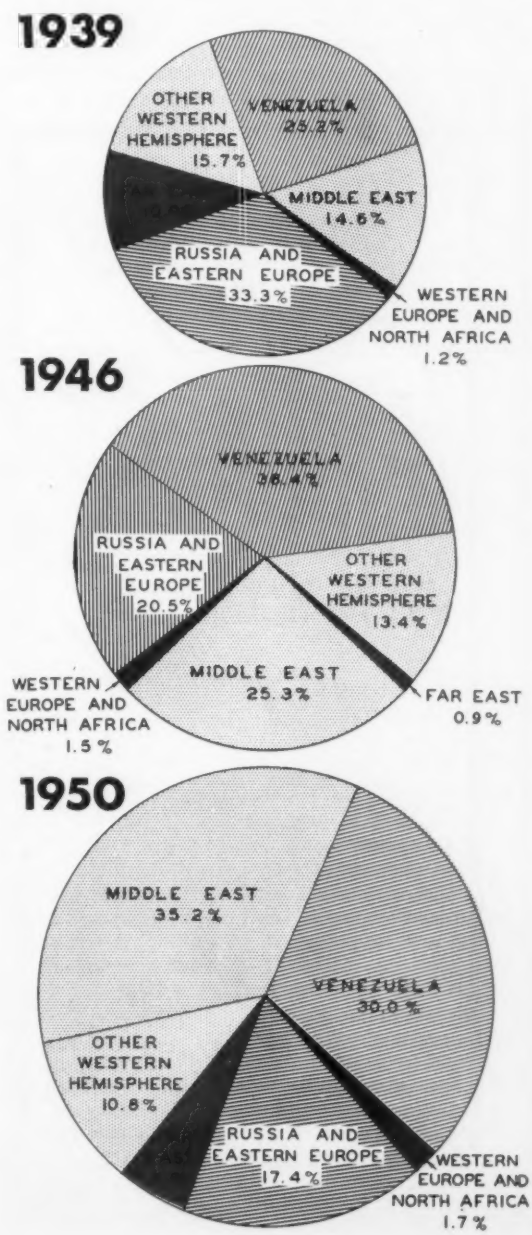
Canadian crude production showed the largest gain of any of the major oil countries of the Western Hemisphere. The 77,000-bbl. daily estimated to have been produced during 1950 was nearly 34 per cent above the previous year, and with the pipe line now in operation, additional gains are expected this year.

While Western Germany appears to have had fewer major discoveries in 1950 than in the previous year, development work brought output to the highest figure since the end of the war and approximately 38 per cent above 1949. The first success of significance in the intensive efforts backed by the French Government to find oil in metropolitan France—the southwestern France discovery at Lacq—brought production in this country to nearly 3,000 bbl. daily last year.

Total production of the Middle East area last year showed an increase of 24.9 per cent over 1949. This gain was slightly greater than that from 1948 to 1949 when output of this region rose by 23.4 per cent. All the four principal producing countries—Iran, Saudi Arabia, Kuwait, and Iraq—established new all-time highs during 1950.

In March, production in Iran rose to approximately 707,000 bbl. daily. The average during the year was an estimated 661,000 bbl. or approximately 18 per cent over 1949. The new 16-in. line to Tripoli allowed production in Iraq's Kirkuk field to average about 129,000 bbl. daily during the year, despite the continued closing of the old 12-in. branch to Haifa.

Opening of the Tapline and the improvement in foreign-exchange availability contributed to the increase in output in Saudi Arabia. The year's production represented an increase of 15 per cent over 1949. Kuwait showed another tremendous gain in production in 1950 when an average of approximately 343,000 bbl. daily was produced from Burghan field.

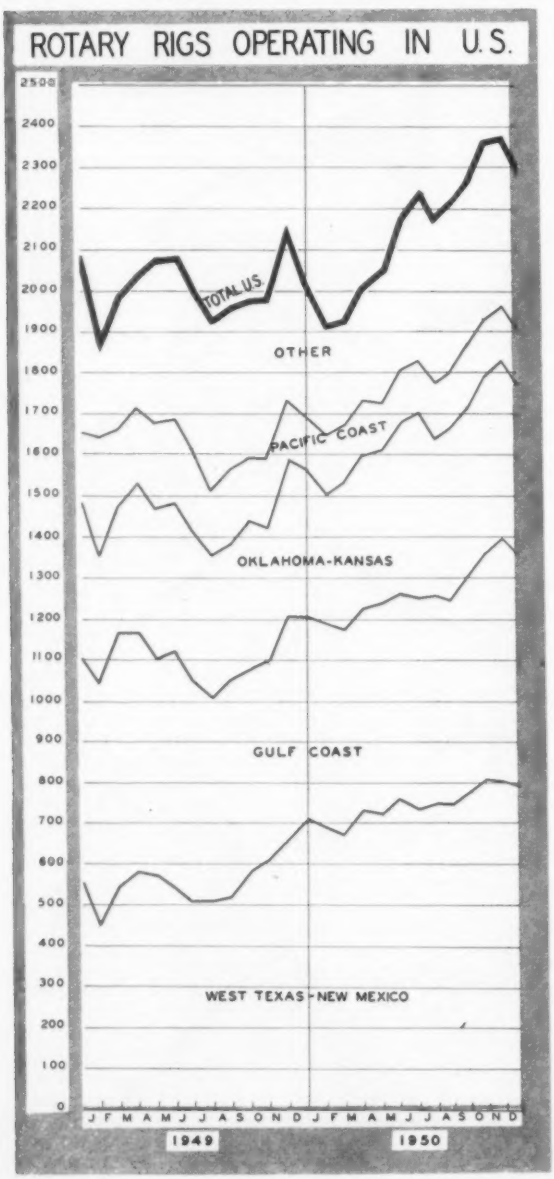


REVIEW and FORECAST

All Previous Records Broken in Number of Rotary Rigs Operating

by Neil Williams

ALL records in the number of rotary rigs operating in the United States and western Canada were broken during 1950. Previously, the greatest number of rigs ever reported running at one time was in November 1948. That number, totaling 2,457, first was exceeded last October. Further increases in activity raised the total to an all-time peak of 2,521 rigs early in December. Although drilling since then has slackened appreciably, following normal seasonal trends, the year closed with 294 more rigs operating than at the start of the year.



DISTRIBUTION OF ACTIVE ROTARY RIGS
(United States and Western Canada)

Area—	1950 Peak* Rigs	1950 Peak* Per cent of total	1949 Peak* Rigs	1949 Peak* Per cent of total	1948 Peak* Rigs	1948 Peak* Per cent of total
Gulf Coast	603	23.9	539	23.6	639	26.0
W. Tex-N. M.	787	31.2	709	31.0	602	24.5
Ark.-L. La.-E. Tex.	163	6.5	159	7.0	188	7.7
Oklahoma	309	12.3	262	11.5	304	12.4
Kansas-Nebraska	161	6.4	144	6.3	127	5.2
Illinois-Eastern	138	5.5	150	6.6	153	6.2
Rocky Mountains	114	4.5	90	3.9	161	6.6
Pacific Coast	132	5.2	148	6.5	207	8.4
Total U. S.	2,407	95.4	2,201	96.4	2,381	96.9
Western Canada	114	4.5	83	3.6	76	3.0
Total	2,521	100.0	2,284	100.0	2,457	100.0

*1950 peak, December 11; 1949 peak, December 12; 1948 peak, November 22.

The 1950 all-time high was 237 greater than the 1949 peak of 2,284 rigs also reached early in December. That peak was passed last June. The past year opened with 2,112 rigs in operation, or 172 rigs under the 1949 high, and 38 rigs below the number operating at the beginning of 1949. The number dropped to a low of 1,948 rigs early in February. Drilling picked up some during the spring months with between 2,000 and 2,100 rigs being kept busy, but remained under the corresponding 1949 levels until the middle of the year. After that, the number of rigs mounted steadily until the December peak.

If trends of the past several years continue to be followed, the present seasonal slackening in drilling activity can be expected to extend through February, and possibly March. However, with the 1951 cycle starting at a substantially higher level than in previous years, the customary upturn in drilling starting in the late spring and gaining momentum through summer and autumn could open the way for new records to be set in the number of operating rigs this year.

The West Texas-New Mexico area accounted for the greatest increase in drilling activity during the year. Spread of development there boosted the number of operating rigs from around 700 at the start of the year to an all-time high for the area of 815 late in October. Since then the number has continued around the 800 level. Within a 2-year period there has been an increase of more than 300 in number of active rigs in that area. This has been due primarily to the intensive exploration and development play which has been going on along the "reef" trend in Scurry and adjoining counties.

Drilling also climbed to new high levels in Oklahoma and Kansas where exploration and development were intensified mainly for extensions, new pay zones, and new productive spots in and close around many of the already existing pools. Activity reached an all-time peak of 323 rigs in Oklahoma and 169 rigs in Kansas during the first part of December.

REVIEW and FORECAST

Utility Sales of Natural Gas Record Greatest Increase

by Dahl M. Duff

THE greatest gain in utility sales of natural gas in the history of the industry was recorded in 1950 with an increase of nearly 19 per cent over the previous year.

The total of 3,694 billion cubic feet sold last year represented an increase of some 586 billion cubic feet over 1949, according to the preliminary figures of the statistical department of the American Gas Association.

The increase reflected both the completion of more new gas pipe lines and the fact that 1949 was marked by unusually warm weather throughout many sections of the country. The increase in sales in 1949 was 7.4 per cent; in 1948, 15.1 per cent; in 1947, 14.6 per cent; and in 1946, 1.9 per cent.

This approximately 10 billion cubic feet daily of natural gas sold last year is equivalent to about 1,750,000 bbl. of oil. Natural gas now enters every section of the country except New England and the Pacific Northwest, and announced projects—carrying Federal Power Commission authorization in the case of New England—indicate gas will be flowing into these areas in the next few years.

An index of last year's rate of expansion in the gas industry that is less affected by the weather is given by the A.G.A.'s compilation of total customers served by natural gas. The average total of all natural-gas customers during the year was 14,266,000, representing an increase of 14.4 per cent over 1949. At the end of the year, natural-gas customers numbered 14,894,000, up 13.1 per cent over the total at the end of 1949.

Continued Expansion Seen

Unless it is severely curtailed by government controls of steel and general industrial expansion, the growth of the natural-gas industry and especially long-distance transmission will continue at its tremendous pace over the next several years. Where the price can be made attractive, gas companies are finding almost unlimited demand and consumer preference for their fuel product.

The A.G.A.'s annual survey of construction expenditures indicates capital expenditures by the natural-gas industry reached their peak in 1950 but that they will be only slightly less in the coming year. Last year, natural-gas-utility construction expenditures totaled $954,300,000, including $645,600,000 for transmission, against $848,100,000 in 1949, including $567,700,000 for transmission. A total of $890,800,000, including $564,700,000 for transmission, is expected to be spent in 1951.

The amount of construction still ahead in the industry is further shown by the fact that the companies surveyed indicated total natural-gas expenditures of $2,747,000,000 in the 5-year period 1950 to 1954. By comparison, in the period 1945-49, construction expenditures amounted to $2,464,000,000.

The natural-gas industry's own estimates of its steel requirement in 1951 point to a possibly greater construction program this year than last. Natural-gas steel needs covering the transmission branch, or from field production sources up to the city distribution gate, were included with those of the entire petroleum industry in the report submitted this fall to the National Petroleum Council.

Natural-gas steel requirements for 1951 were listed at a grand total of 3,059,377 short tons, of which 2,947,281 tons were for tubular goods. The 1950 use of steel in gas transmission was placed at 2,290,385 tons. These figures indicate that the industry would like to use about a third more steel during the current year.

Another forecast of the further expansion likely in natural gas is shown in a compilation made by a major oil company of the anticipated additional supplies of gas which will be moved out of the Southwest into the various parts of the country in the next several years. In the period from the beginning of 1950 through the early part of 1953, this company's figures indicate that more than 3,500 million cubic feet daily will be added to the total now being delivered.

Total Nearly 4½ Trillion

This figure applies only to the total of projects actually authorized. Including those pending and awaiting action of the FPC, the total is raised to approximately 4,500 million cubic feet daily. The data are derived from applications filed with the commission and duplications have been eliminated as far as possible. In the breakdown by PAW districts, it was pointed out that it is sometimes not definitely known as to exactly in which district some deliveries will be made. The tabulation is summarized as follows:

(In millions of cubic feet daily)

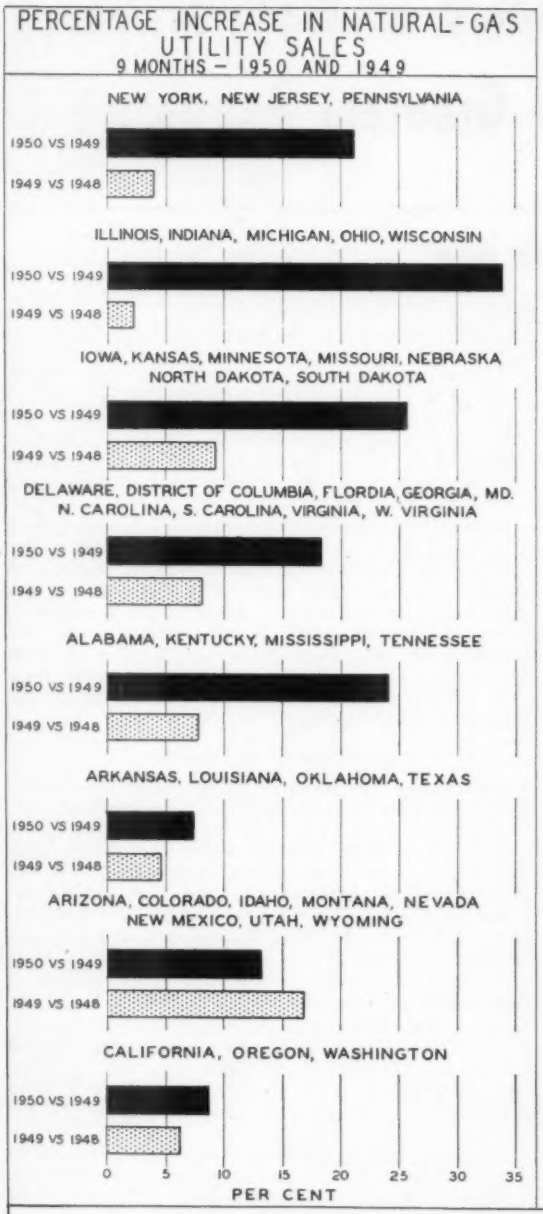
	Authorized	Pending	Total
District 1	1,200	400	1,600
Districts 2 and 4	1,775	325	2,100
District 5	550	250	800

These figures apply to the additional movement of gas expected out of the six-state area of Texas, Oklahoma, Kansas, New Mexico, Arkansas, and Louisiana. In the District 5 total (West Coast), one project for 250,000,000 cu. ft. daily to supply the Pacific Northwest is included.

The A.G.A.'s preliminary figures on total utility sales for 1950, together with the actual sales for prior years, show a continuation of the slight trend apparent since the end of the war toward a greater percentage of sales to residential customers. Last year, residential sales took 30.3 per cent of the total, compared to 29.4 per cent in 1949 and 28.8 per cent in 1948.

The big volume of gas continues to go to the industrial users, many of whom are on an interruptible basis and subject to curtailment or shutoff during peak periods of heating demand. More than 60 per cent of last year's sales were to industrial customers. This includes the 3.3 per cent shown by the A.G.A. in its "others" classification and which is largely industrial in nature such as street lighting and municipalities other than for resale.

The 54,000 industrial customers receiving gas



from utility companies last year took an average of about 41,000,0000 cu. ft. each. The residential customers used 85,500 cu. ft. each, and the commercial users, 299,000 cu. ft. each. However, of the 13,650,000 total residential customers listed, only about 60 per cent use gas for heating; the other 40 per cent are mainly residential users of gas for cooking and water heating only.

Other information on the gas-industry outlook from the standpoint of its ability to meet demands made on it, was contained in the recent report to the National Petroleum Council by its petroleum and natural-gas transportation committee headed by P. C. Spencer, president of Sinclair Oil Corp.

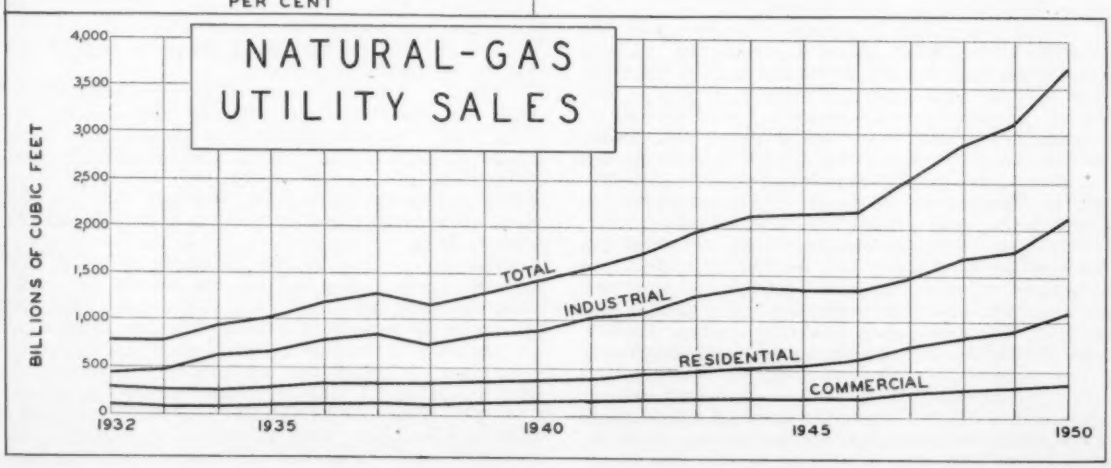
The natural-gas section of this study was carried out by a group headed by J French Robinson, president of East Ohio Gas Co. A summary of the report was made public but details were classified as restricted at the request of government officials.

In general, the group found that the supply of natural gas for the country during the next few years will be adequate except for likely deficiencies in pipe-line capacity in the Far West and in the Southeast. Its forecast took into consideration projects under construction and authorized.

One particularly notable event in the natural-gas industry during 1950 was the opening of the Transcontinental Gas Pipe Line Corp. system into New York City. This world's longest pipe line, mostly 30 in. in diameter, when fully completed will extend from the Lower Rio Grande Valley to the Connecticut-New York State line. Though deliveries began in 1949 into Staten Island by a connection with Texas Eastern Transmission Corp., Transcontinental's completion marked the first large-scale flow of gas into the country's largest city.

A Federal Power Commission decision in the fall gave a go-ahead to plans of Northeastern Gas Transmission Co. to provide the first natural-gas service in the much-fought-for New England market. Northeastern is a subsidiary of Tennessee Gas Transmission Co. and will also take gas from a connection with the Transcontinental system. The commission said Algonquin Gas Co., which would take its gas supply from Texas Eastern, should serve a part of the New England market if it showed it had adequate gas supplies. Hearings on this matter have been under way in Washington.

Hearings continued intermittently during last year before Canadian governmental bodies on the proposals to supply the Pacific Northwest, both in Canada and the United States, with gas exported out of Alberta. A fresh development in this connection was the proposal of a Texas company to build a line out of the Southwest into the area.



REVIEW and FORECAST

Refining Industry Well Prepared To Conform to Wartime Program

by George Weber

INDUSTRIAL and military mobilization in this country will dominate the pattern of refining for the next few years and the full influence of the rearmament program will be felt later this year. While actual military consumption of petroleum products will probably remain a small percentage of over-all 1951 demand, the potential requirements for subsequent years under continuing mobilization will largely determine the course of new construction, and to some extent, process development.

At the present time, much uncertainty exists as to the actual level of operations for 1951. It is fully evident that the over-all demand will be higher than in 1950 and the U. S. Bureau of Mines' estimate of a 7.3 per cent increase in crude runs to stills is considered sound.

Motor-fuel octanes, which were generally arrested at the high level reached last summer, will decline. The allocation of more feed stocks to processing units contributing to aviation gasoline, synthetic rubber, and other rearmament needs will continue throughout this year. Lube-oil manufacture is likely to continue at capacity, with a severe additive shortage threatening.

Regarding new construction, those projects initiated before Korea will continue to go into the construction stage early this year, providing some increase in crude capacity, catalytic cracking, catalytic reforming, and other processing facilities. Some lull may be expected before further construction based on war or near-war preparation follows.

Many refiners now have in the planning stages additional expansion and extension of operations. It is evident, however, that new projects to be initiated this year and next will need to be justified from a mobilization standpoint. As a result of the uncertainty regarding future military requirements and what new facilities will best meet such needs, new construction plans are temporarily being held up. Construction for defense will commence in 1951 as soon as military needs are estimated and industry advisers are able to recommend to the Government the best procedure for preparing for whatever degree of mobilization is indicated.

In the present state of uncertainty, forecasts of 1951 domestic consumption are subject to many qualifications. The Bureau of Mines estimate of a 7.3 per cent increase in runs to stills amounts to an average of 6,148,000 bbl. per day. Since this estimate was made before the announcement of accelerated mobilization in December, it is felt by some observers that it may prove conservative on the basis of military requirements alone. Petroleum requirements per individual in armed service are higher than per capita civilian demand.

Despite the addition of some crude capacity during the year, refinery operations will likely continue at the high level of about 90 per cent of rated capacity. Many plants are known to be operating at well over the rated capacity figures they report for national compilation, thus the accepted figure of 6,737,000 bbl. per day may be a conservative estimate on the basis of per stream-day capacity in this country. In an emergency it is further estimated that crude capacity could be boosted by about 10 per cent by reactivating equipment not economically usable in normal operations. Despite these possible cushions on crude capacity, new facilities will be needed in many refineries in the next year or two.

Motor Fuels

Motor-fuel rationing is not seen as a possibility for 1951 or, barring an all-out war, for subsequent years. But gasoline antiknock quality will be reduced, starting with a loss of possibly two octane numbers in 1951. The reason for such a move is not alone the diversion of high-octane components to military aviation gasoline, since avgas requirements will remain relatively small as compared with motor-fuel consumption. The principal factor is the probability that government stockpiling of tetraethyl lead will begin this year. Until new manufacturing facilities now building are put in production, supply and demand are in balance. Stockpiling this year at least will require diversion of some TEL from civilian motor fuels.

Although some refiners believe that East Coast and Gulf Coast octane numbers will be hardest hit since they are the highest, the indication is that octane ratings of both regular and premium gasolines will be reduced about the same amount over the nation. This would maintain the same relative geographical spread in antiknock quality for which new motor cars are now adjusted. Further, when a government ceiling is placed on octane, the output ratio of premium to regular grades will also be fixed, presumably in its present relationship.

Aviation Gasoline

Avgas, particularly the military 115/145 grade, will continue its present production rise throughout 1951. The temporary emergency which arose suddenly last autumn with the sharp increase in military requirements is now over. The diversion of added feed stocks to existing alkylation units will continue this year and while sufficient capacity has been reactivated to care for the immediate future, new plant construction and expansion of existing units are now projected. This construction may begin before the end of 1951.

Jet Fuels

Jet fuel is not expected to represent an important demand volumewise this year or even next year. Its production as needed will require none of the processing problems attending volume output of aviation gasoline, as it will be blended largely from straightrun light distillates. New capacity can readily be planned to conform to the military jet program.

The possibility of a new specification, JP-4, is strong at this time. The proposed low-volatility fuel may have a 1 to 1.5-lb. R.v.p. which indicates the need for added stabilization facilities. The possibility of a sizable jet-fuel consumption raises the problem of its competing with feed stocks for catalytic cracking and reforming processes, but such a problem is considered long range for the present.

Diesel Fuels

The demand for high-quality diesel fuels will continue to increase with railroad utilization rising steadily and additional naval vessels coming out of mothballs. It appears that straightrun fuels are going to be demanded for submarines and destroyers at least. This, coupled with the necessity for providing railroads with high-quality fuel will cut into the quality of nonessential diesel fuel and heating oils in a sustained mobilization effort or all-out war.

Lube Oils

On lubricants generally, capacity is believed sufficient for the near future. In direct comparison to the apparent overcapacity of a year ago, the industry is no longer considered long on lube facilities. Some plans are now under consideration for expanding solvent lube capacity, but those refiners contemplating such new construction do not know whether construction will begin in 1951 or later.

A marked storage of additives is in the offing and the need for additional capacity for synthesizing petroleum sulfonates and other additive types is already evident. Some new facilities are now projected by refiners who will have a green light for their programs.

Aromatics

The expanded need for benzene, toluene, xylene, and other war-essential aromatics cannot be met by the coal-coking industry and petroleum refiners will be elected to make up the shortage. Benzene, which has been given much publicity, need not be considered as an industry-wide problem. A program calling for 50,000,000 gal. per year amounts to daily average production of 3,260 bbl. It is probable that at most, a few refiners will build new benzene facilities with government aid. The logical companies are those whose chemical affiliates consume benzene. The characteristics of California and Gulf Coast crudes indicate that most benzene will be synthesized in those regions. One California major is now planning to install catalytic reforming for that purpose. The two refiners now producing benzene will continue operations at as high a level as feed-stock availability will permit, with a combined annual output of about 10,000,000 gal.

Other aromatics necessary for aviation gasoline, munitions, and other military needs will be separated from refinery and gasoline-plant streams and synthesized by newly developed catalytic reforming processes. Some existing capacity for producing aromatics remains from World War II and new cat reforming units planned for motor-fuel octane improvement may be diverted to aromatics production.

Processing Trends

The coming economy of war or near war will bring about some changes in the balance of petroleum processing for at least the next few years. Just what that balance will be depends largely on the recommendations of industry advisory groups now considering the problem. Catalytic cracking, catalytic reforming, ethylene and butylene alkylation, codimer hydrogenation, isomerization and aromatics synthesis are being weighed in an effort to arrive at a balanced program which will take into consideration existing facilities and the steel, equipment, man power, and feed stocks required for new construction. So far as possible those processes which show most promise of later use in a peacetime economy will be favored, provided they meet the principal requisite of first fulfilling a military need. Government aid in various forms is probable for new projects, comprising long-term contracts, eccelerated depreciation, or government financing.

Alkylation

The most pronounced swing in processing in 1951 and subsequent years will probably be toward alkylation. This process had already started a revival before Korea as a means for meeting competition in the stiff octane race. Its necessity for making a higher grade of aviation gasoline which now constitutes up to 80 per cent alkylate has brought about reactivation of many World War II plants and will call for new construction beginning late this year.

Some ethylene alkylation is considered a possibility. Although butylene alkylation is the most efficient process, consuming less acid catalyst and producing superior product, the competition for butylene feed stocks may require some operations on other olefin feeds. In view of the almost certain resumption of the octane race on return to a peacetime economy, alkylation is expected to retain much of its importance once the current emergency is ended.

Catalytic Reforming

Before the turn of events of the past 6 months, catalytic reforming looked like the dominant new process for 1951. As a means for upgrading low-quality straightrun gasoline, naphtha, and natural gasoline to high-octane motor fuel components, the process promised wide application in a continued octane race. It is still considered highly important, but new installations contracted in the near future will be tied mainly to aromatics production.

One process introduced nearly 2 years ago will have about 50,000 bbl. per day of feed capacity in operation by the end of this year. Two other catalytic reforming processes have been developed and commercial plants employing them are now in design stage. This year may also see the introduction to still two more cat reforming processes which are known to be in the development stage at this time. While catalytic reforming will find moderate application in playing a military role, the full realization of its potential importance will await the return of normal operations for which it was primarily developed.

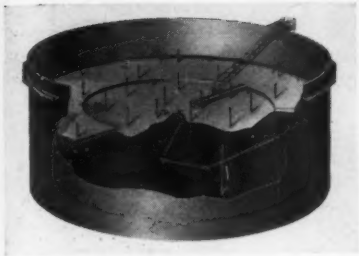
Catalytic Cracking

The record-breaking postwar construction of catalytic cracking plants gives the industry a sound basis for military preparation. In this respect refiners are far better prepared than at the beginning of World War II. Some additional cat cracking capacity will be required in the generally expanded operations of the next several years but construction of new units will be modest by comparison with that of World War II.

Many existing units of the fixed-bed and moving-bed types may be expanded substantially by revamping. At present a number of fixed-bed units are being expanded by 50 per cent by conversion to moving-bed design employing gas lift for catalyst. War-built moving-bed units may also be expanded by substituting gas lift for the outmoded bucket lift, thereby increasing both capacity and flexibility.

In the long range, catalytic cracking of heavier feed stocks is anticipated. Development work along these lines has been active, but substantial results are not expected before 1952. Polymerization of catalytically cracked light ends is expected to give place to alkylation in new units built during the emergency. Fractionation and other separation techniques will play important parts in the preparation of specialized feed stocks for conversion processes and in specialty product concentration.

In general, the refining industry is well prepared to conform to a wartime program. Firm confidence is felt on the part of government advisers that the industry they represent will meet quantity and quality requirements of military fuels and lubricants when they are needed. For a short-of-war program, military demand can be superimposed on a record civilian consumption with no prospect of serious shortages or quality sacrifice for the latter.



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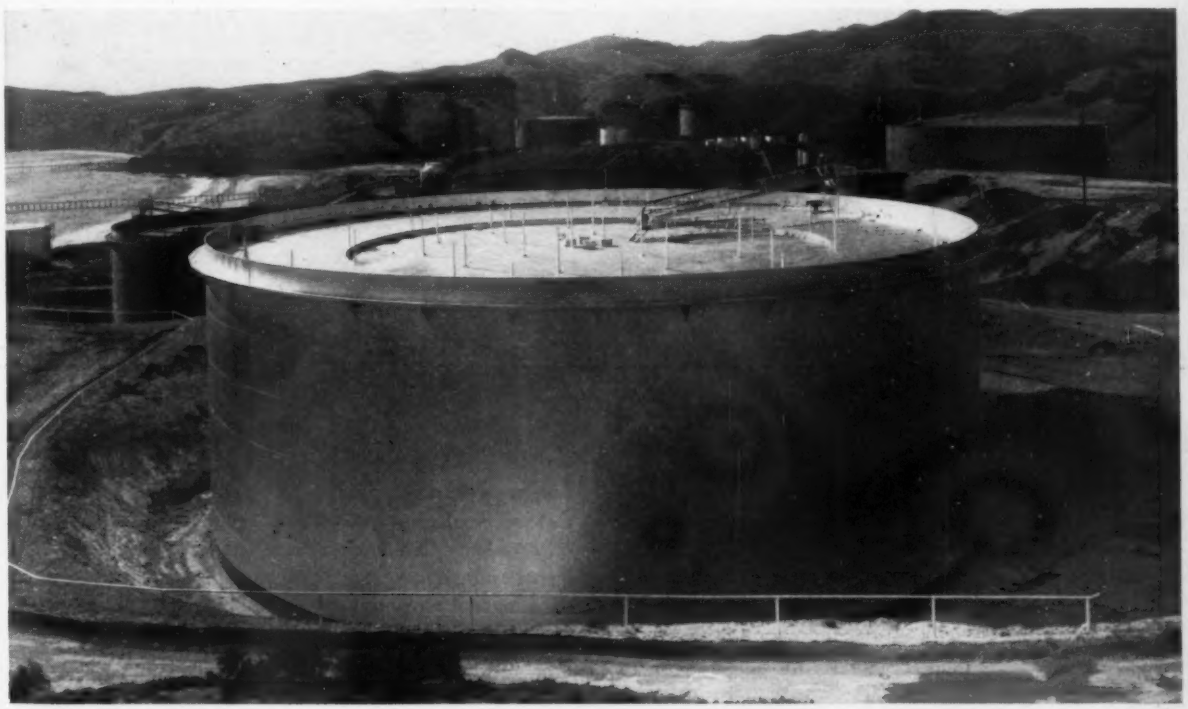

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REVIEW and FORECAST

Pipe Liners Set Record-Breaking Pace in 1950—Build 20,000 Miles

by Paul Reed

THE high annual rate of pipe-line construction throughout the world in 1950 sets a pace which promises to continue during 1951 up in the 19,000 to 20,000-mile range for petroleum and natural-gas projects.

Records were broken in the United States with the completing of projects totaling more than 16,000 miles. Natural-gas lines led completed projects with 10,623 miles; crude-oil line completions totaled 3,214 miles, while an unusually high figure for products-line construction was reached with 2,444 miles. Work is still under way this winter in this country for projects of all three types totaling 5,021 miles.

Plans for future lines in the United States indicate a total of approximately 25,000 miles of which 17,000 would be for natural gas, 4,000 miles for products, and 4,600 miles for crude-oil lines.

Abroad, crude-oil construction in 1950 amounted to 2,700 miles of the total completed foreign projects of 2,960 miles. Important in plans for foreign construction are lines for natural gas in Canada and Mexico and crude-oil projects in the Middle East and Latin America.

Announcements of two large crude-oil projects comes as this compilation of pipe-line-construction statistics goes to press. These include Sinclair Pipe Line Co.'s 700-mile, 22-in. Drumright, Okla.,- Chicago line, and the project of Gulf Oil Corp., Sun Oil Co., Standard Oil Co. (Ohio), Pure Oil Co., and Cities Service Oil Co., for a 440-mile, 24 and 26-in. line from Colorado City to Sour Lake, Tex. Announcements of several large projects have been delayed pending efforts to obtain government approval.

In the United States the most conspicuous project in 1950 was that of Transcontinental Gas Pipe Line Co. for a system from the Rio Grande Valley of Texas to New York City with a trunk line largely of 30-in. pipe. Pacific Gas & Electric Co. has recently completed the first natural-gas line with a diameter as large as 34 in.; this is the 506-mile line from Arizona to the San Francisco area.

Tennessee Gas Transmission Co. attained a billion-cubic-feet per day capacity with the large looping program of 1950 to augment its facilities which have been extended to Buffalo and will be further extended to New England. The great projects of Texas-Illinois Natural Gas Pipeline Co. and Trunkline Gas Co. for transmitting from the Gulf Coast to the Great Lakes regions, which were started in 1950, will be predominant undertakings in 1951. Looping and laying of parallel lines will continue to proceed on a large scale to amplify throughput. A striking example of expansion programs of this type is the Texas Eastern Gas Transmission Co. line from Mississippi to Pennsylvania.

With the opening of the construction season Platte Pipe Line Co. will begin a big-inch crude-oil line from Wyoming to Wood River, Ill.

Amplification programs for products pipe lining are exemplified by the parallel line programs of the Great Lakes Pipe Line Co. and Plantation Pipe Line Co.

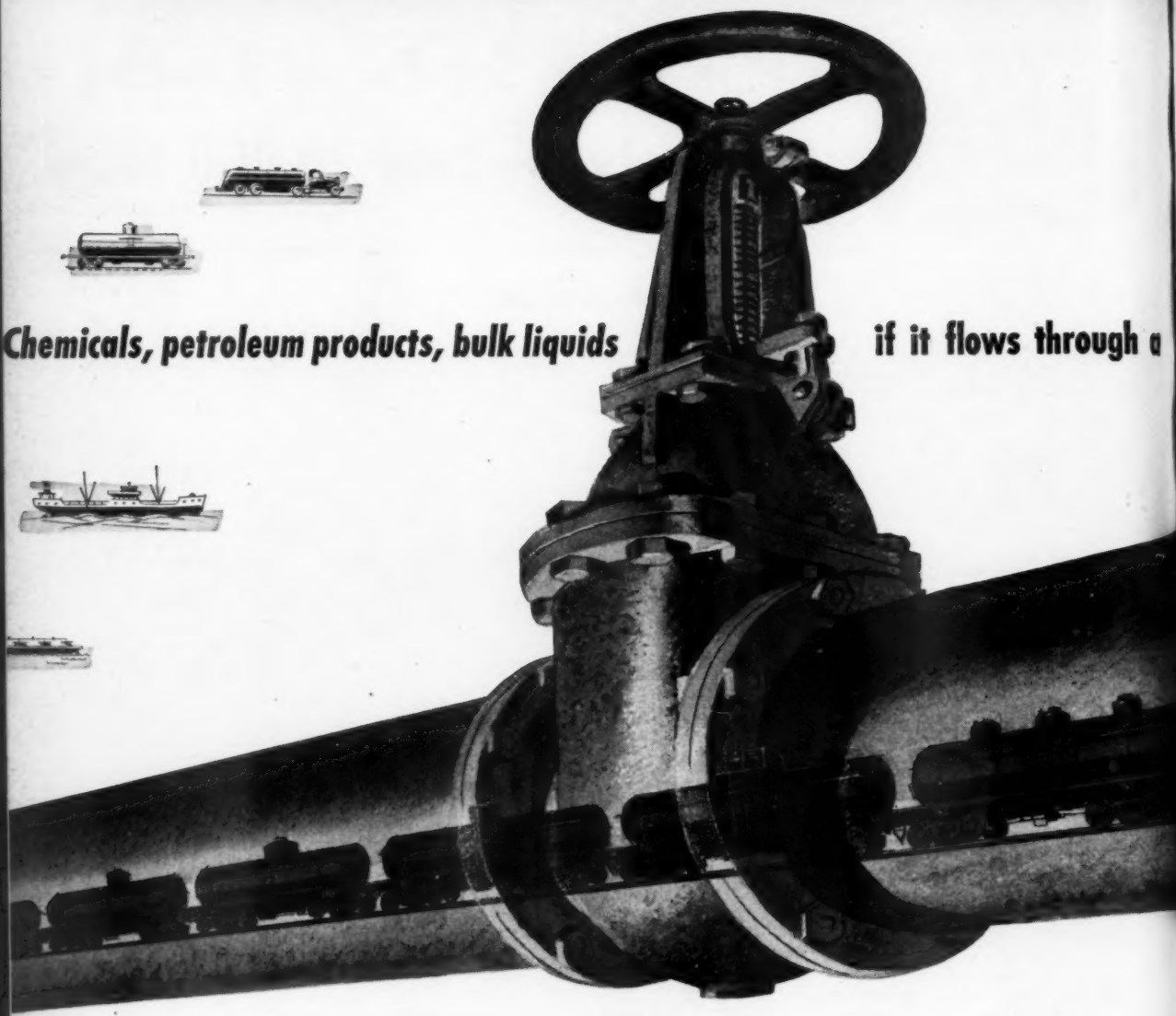
In foreign work ability to carry through large projects to fast completion was illustrated in the accomplishments of Interprovincial Pipe Line Co. in Canada and the Trans-Arabian Pipe Line Co. in the Middle East.

Table 1—Principal Domestic Crude-Oil Projects Planned and Under Way

Company—	Miles	Inch	Status	Contractor, location, and completion date
Phillips Pipe Line Co.	24	8	Under way	Gragg Construction Co.—Loops between Thrall and Kansas City, Kans.
Phillips Pipe Line Co.	281	10	Planned	Borger, Tex.-Yale, Okla., 7-51.
Platte Pipe Line Co.	1,080	16-20	Planned	Worland, Wyo., to Wood River, Ill. Worland-Casper 140 mi., 16-in. Casper-Wood River 940 mi., 20-in.
Progress Co.	1,100	24	Proposed	Hobbs, N. M.-Long Beach, Calif.
Texas Pipe Line Co.	[illegible]	[illegible]	Under way	R. H. Fulton & Co.—Wichita Falls to Chico, Wise County, Texas.
West Coast Pipe Line Co.	900	20	Proposed	Permian basin, West Texas to California.

Table 2—Principal Domestic Products-Line Projects Planned and Under Way

Buckeye Pipe Line Co.	400	8 to 14	Planned	New York, New Jersey, Philadelphia.
Great Lakes Pipe Line Co.	355	12	Planned	Kansas City through Omaha and Sioux City, Iowa, to Sioux Falls, S. D.
Miami Valley Corp.	58	8	Under way	Dayton to Cincinnati, Ohio.
Plantation Pipe Line Co.	707	14-18	Contracted	Williams Bros.—Baton Rouge to Charlotte, N. C.
Plantation Pipe Line Co.	275	14	Under way	Williams Bros.—Bremen, Ga., to Charlotte, N. C., 1951.
Plantation Pipe Line Co.	432	18	Under way	Williams Bros.—Baton Rouge to Bremen, Ga., 1951.
Plantation Pipe Line Co.	220	18	Contracted	Williams Bros.-Davis Co.—Baton Rouge, La., to Miss.-Ala., state line.
Progress Co.	1,100	10	Proposed	Long Beach, Tex., Arizona and New Mexico points.
Pure Transportation Co.	100	6	Under way	Wabash Const. Co.—Heath to Dayton, Ohio.
Triangle Pipe Line Co.	100	10	Planned	El Dorado, Ark., to point on Mississippi River.
Tuscarora Oil Co., Ltd.	27	8	Contracted	Pipe Line Construction & Drilling Co.—Pittsburgh Junction, Pa., to Midland, Pa.



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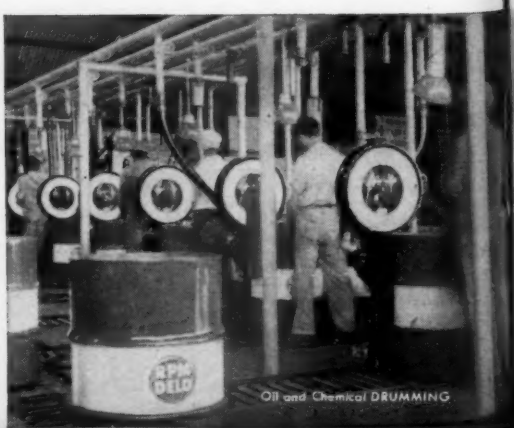

Oil and Chemical DRUMMING

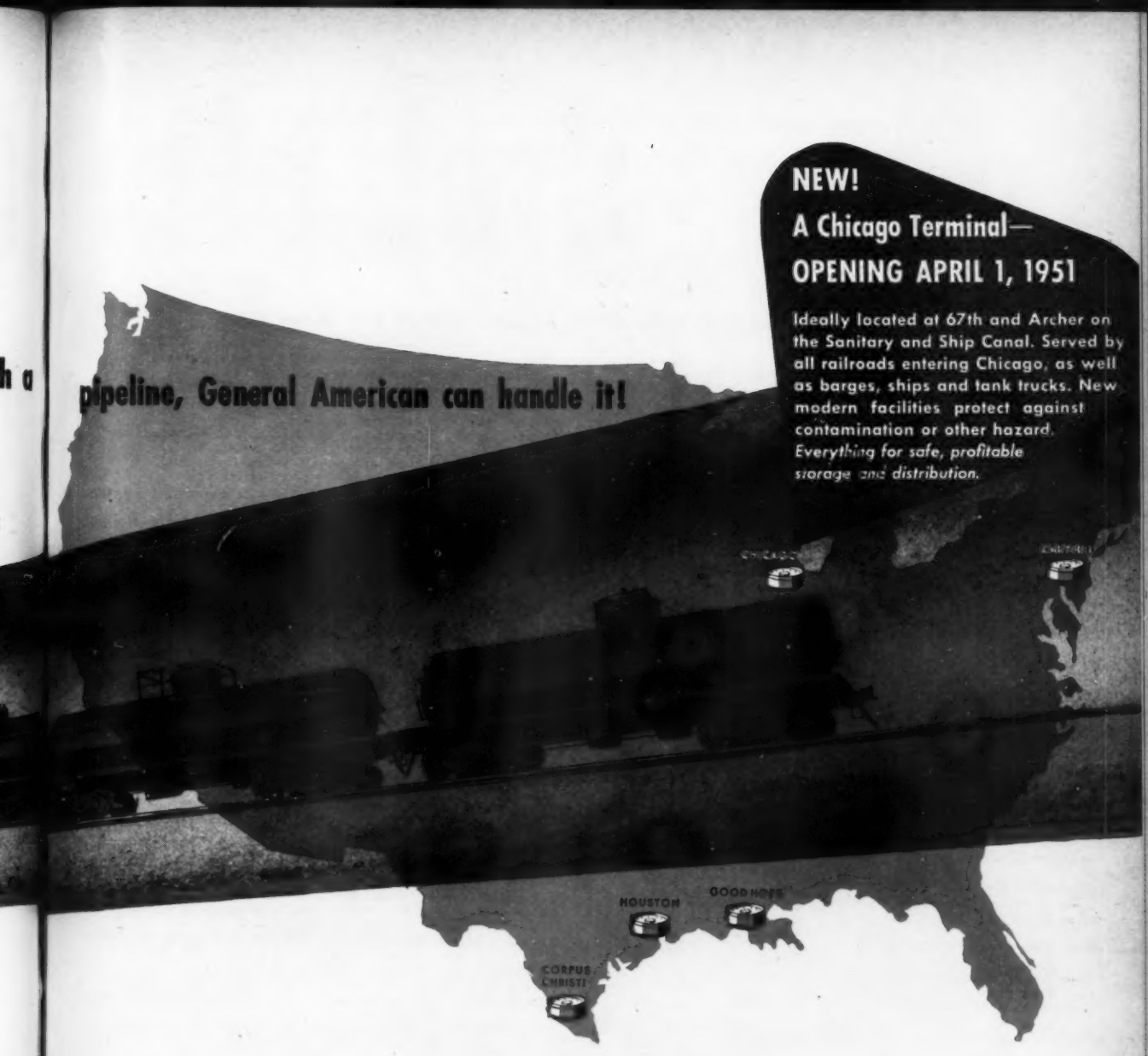
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Table 2—Principal Domestic Products-Line Projects Planned and Under Way (Continued)

Company—	Miles	Inch	Status	Contractor, location, and completion date
Tuscarora Oil Co., Ltd.	34	10	Contracted	Pipe Line Construction & Drilling Co.—Knappenberger Scraper Trap to Pittsburgh Junction, Pa.
Tuscarora Oil Co., Ltd.	26	10	Contracted	Pipe Line Construction & Drilling Co.—Barneytown Scraper Trap to East Freedom, Pa.
United States Pipe Line Co.	1,000	..	Planned	Houston-Beaumont, Tex., area to St. Louis-Chicago, Ill., area.

Table 3—Principal Domestic Natural-Gas Projects Planned and Under Way

Algonquin Gas Transmission Co.	276	..	Proposed	Lambertville, N. J., to Boston area.
Algonquin Gas Transmission Co.	492	..	Proposed	Laterals—New England area.
Atlantic Gulf Gas Co. (United Gas Pipe Line Co.)	1,530	..	Planned	Alabama-Florida-Georgia-South Carolina.
Carolina Natural Gas Corp.	470	2-12	Planned	Lateral lines off Transcontinental.
City of Florence, Ala.	84	1 to 8	Under way	Alabama, 10-51.
City of Indianapolis, Inc.	22	16	Under way	Contracting & Material Co.—Indianapolis to Panhandle Eastern system.
Coast Counties Gas & Electric Co.	40	3-4-8	Considered	Coast and valley region, California.
Commonwealth Natural Gas Corp.	537	20	Proposed	West Bend, Ky., to Norfolk, Va.
Commonwealth Natural Gas Corp.	99	18	Under way	Ray L. Smith & Son.—Standardsville to Petersburg, Va.
Commonwealth Natural Gas Corp.	69	12	Under way	Ray L. Smith & Son.—Petersburg to Norfolk, Va.
Commonwealth Natural Gas Corp.	14	8	Under way	Ray L. Smith & Son.—Suffolk to Newport News, Va.
Commonwealth Natural Gas Corp.	10	..	Contracted	Ray L. Smith & Son.—Laterals—Richmond, Suffolk, and Portsmouth, Va.
Egyptian Natural Gas Co.	80	6-8	Authorized	Norris City to Salem, Ill., 1951.
El Paso Natural Gas Co.	470	24	Under way	San Juan basin, New Mexico, to Franconia, Ariz., 5-51.
Jersey Central Power & Light Co.	39	10	Planned	New Jersey to Coast System of Texas Eastern Transmission Co.'s Big Inch.
Kansas-Nebraska Natural Gas Co., Inc.	22	12	Planned	Holcomb to Scott City, Kans., replacement.
Kansas-Nebraska Natural Gas Co., Inc.	12	12	Planned	Blakeeney to Palco, Kans., replacement.
Kansas-Nebraska Natural Gas Co., Inc.	34	12	Planned	Palco to Phillipsburg, Kans., replacement.
Kansas-Nebraska Natural Gas Co., Inc.	10	12	Planned	Alma to Holdredge, Neb., replacement.
Kansas-Nebraska Natural Gas Co., Inc.	59	8-10	Planned	Grand Island to Albion, Neb., extension.
Kansas-Nebraska Natural Gas Co., Inc.	40	6	Planned	Albion to Norfolk, Neb., extension.
Kansas-Nebraska Natural Gas Co., Inc.	27	6	Planned	Albion to Neligh, Neb., extension.
Kansas-Nebraska Natural Gas Co., Inc.	39	4-6	Planned	Neligh to O'Neill, Neb., extension.
Kansas-Nebraska Natural Gas Co., Inc.	54	4-6	Authorized	Neligh to Hartington, Neb., extension.
Magnolia Petroleum Co.	60	4-24	Under way	Henry L. Lemons & Co.—Gathering system in La Ward and Lolita fields.
Michigan Gas Storage Co.	87	22	Under way	Mahoney Contracting Co.—St. John to Marion, Mich.
Mississippi River Fuel Corp.	40	18	Authorized	Dubach to Perryville, La.
Nevada Natural Gas Pipe Line Co.	114	..	Proposed	Topock, Ariz., to Las Vegas, Nev.
New River Gas Co.	50	..	Planned	Summers or Monroe counties to Narrows and Dublin, W. Va.
New York State Natural Gas Corp.	45	16-18	Under way	Pipe Line Construction & Drilling Co.—Leidy field to Westfield, Pa.
New York State Natural Gas Corp.	164	16	Planned	Ithaca to Albany, N. Y.
New York State Natural Gas Corp.	70	20	Planned	North Oakford, Pa., to Ohio State line.
Niagara Mohawk Power Corp.	35	10-14	Under way	Williams-Austin Co.—Thermal station to Fulton, N. Y.
Northeastern Gas Transmission Co.	511	up to 20	Proposed	To extend from a connection with a proposed Tenn. Gas Trans. Co. extension to serve New England states.
Northwest Natural Gas Co.	750	..	Planned	Washington, Oregon, and Idaho.
Ohio Fuel Gas Co.	22	16	Authorized	Dayton, Troy, Piqua, and Sidney, Ohio.
Oklahoma Natural Gas Co.	53	26	Under way	Trojan Const. Co.—Edmond to Depew, Okla.
Oklahoma Natural Gas Co.	40	16	Planned	Trojan Const. Co.—Velma to Chickasha, Okla.
Pacific Northwest Pipe Line Co.	400	22	Planned	Gathering lines on Texas Gulf Coast to Pacific Northwest pipe line.
Pacific Northwest Pipe Line Co.	2,100	26	Planned	Texas Gulf Coast to Pacific Northwest.
Pacific Northwest Pipe Line Co.	1,000		Planned	Southwestern Oklahoma-Windsor, Ont.
Panhandle Eastern Pipe Line Co.	356	26	Under way	Looping in Texas, Oklahoma, Kansas, Missouri, Illinois, Indiana, Ohio, Michigan.
Panhandle Eastern Pipe Line Co.	172	26-30	Authorized	Tuscola, Ill., eastward—looping present system.
Panhandle Eastern Pipe Line Co.	....	4-12	Under way	Knupp Const. Co., Inc.—Hugoton gas field.
Phillips Petroleum Co.	118	3-22	Under way	Vaughn & Taylor Const. Co., Inc.—Sherman and Hansford counties, Texas, gas gathering system.
Piedmont Natural Gas Co.	....	..	Planned	North and South Carolina.
Potomac Gas Co.	18	18	Planned	Dranesville to Arlington, Va.
Prince George's Gas Corp.	20	22	Authorized	Between Chillum and Rockville, Md.
South Central Alabama Natural Gas Co., Inc.	150	..	Proposed	Central Alabama.
South Georgia Natural Gas Co.	248	..	Planned	
South Jersey Gas Co.	....	14	Under way	G. G. Griffis, Inc.—Franklinville, N. J., to Bridgeton, N. J.
Southeastern Michigan Gas Co.	55	12	Proposed	Oakland County to Marysville, Mich.
Southern California Gas Co.	24	30	Authorized	Inglewood to San Fernando Valley.
Southern Natural Gas Co.	110	13	Considered	Extension.
Southern Natural Gas Co.	138	20-22	Planned	Chattanooga, Tenn., to Lexington, Miss.
Southern Natural Gas Co.	161	16-18	Under way	Associated Pipeline Const.—Selma, Mitchell Village to Elmore, 2-51.
Southern Natural Gas Co.	225	16	Planned	Colfax gas extension.
Southern Natural Gas Co.	314	18	Planned	Extension.
Sullivan, Long & Haggerty	60	up to 10	Under way	Carruth Pipe Line Corp.—Vicinity of Dyersburg, Tenn.

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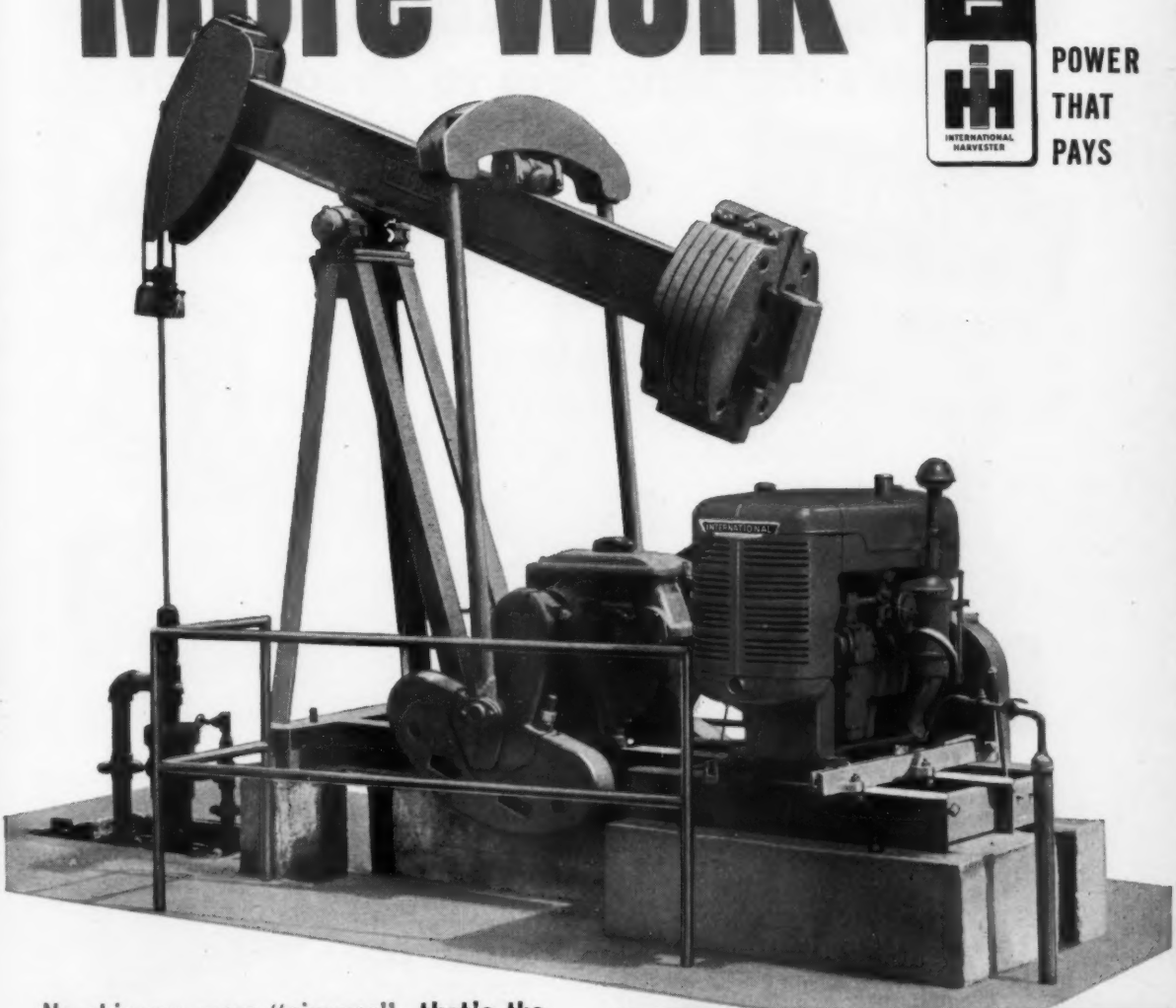

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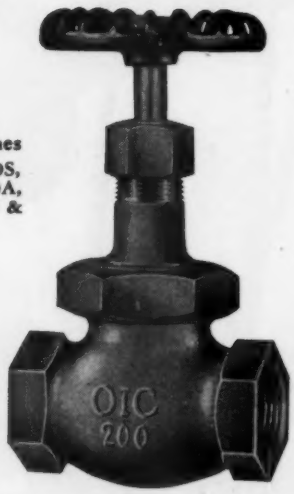

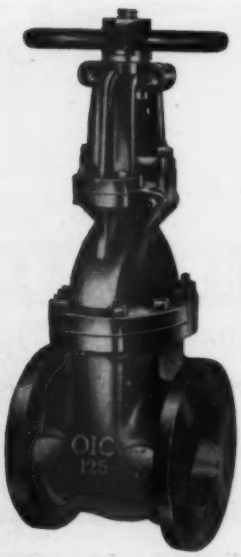

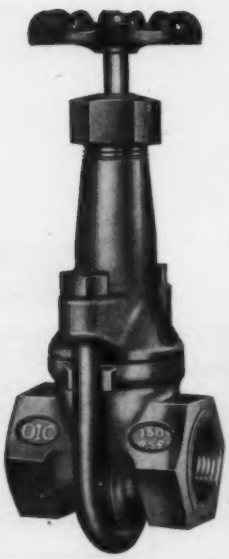

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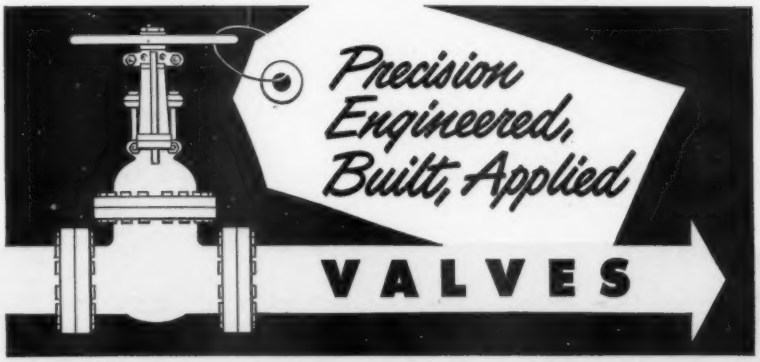

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Table 3—Principal Domestic Natural-Gas Projects Planned and Under Way (Continued)

Company—	Miles	Inch	Status	Contractor, location, and completion date
Sunray Oil Corp.	133	3-30	Under way	Vaughn & Taylor Const.—Snyder gasoline plant to Scurry County, Texas.
Tennessee Gas Transmission Co.	303	..	Planned	Buffalo, N. Y., to N. Y.-Mass. boundary.
Tennessee Gas Transmission Co.	786	..	Planned	Loops.
Tennessee Gas Transmission Co.	75	..	Planned	Laterals.
Texas Eastern Transmission Corp.	35	30	Authorized	Connellsville to Delmont, Pa.
Texas Eastern Transmission Corp.	791	30	Planned	Koskiusko, Miss.-Oakford field, Pennsylvania.
Texas Gas Transmission Corp.	33	12	Authorized	Slaughters, Ky., to Evansville, Md.
Texas Gas Transmission Corp.	723	26	Under way	Lisbon, La., to Middleton, Ohio.
Texas Illinois Natural Gas Pipeline Co.	1,331	30	Approved	Corpus Christi area to Joliet, Ill.
Texas Illinois Natural Gas Pipeline Co.	100	26	Under way	Midwestern Const., Inc.—Schedule 1, LaGloria to Refugio, Tex.
Texas Illinois Natural Gas Pipeline Co.	100	30	Under way	Midwestern Const., Inc.—Schedule 11, Mississippi River near Chester, to Effingham, Ill.
Texas Illinois Natural Gas Pipeline Co.	117	30	Under way	Midwestern Const., Inc.—Schedule 12, Effingham to Sibley, Ill.
Texas Illinois Natural Gas Pipeline Co.	92	30	Under way	Midwestern Const., Inc.—Schedule 13, Sibley to Joliet, Ill.
Texas Illinois Natural Gas Pipeline Co.	410	30	Under way	Bechtel Corp.—Texarkana, Ark., to Claryville, Mo.
Texas Illinois Natural Gas Pipeline Co.	97	26	Contracted	H. C. Price.
Texas Illinois Natural Gas Pipeline Co.	38	12	Contracted	H. C. Price.
Texas Illinois Natural Gas Pipeline Co.	200	30	Contracted	H. C. Price.
Texas Illinois Natural Gas Pipeline Co.	126	30	Contracted	H. C. Price.
Transcontinental Gas Pipe Line Corp.	35	24	Authorized	Patterson lateral to Greenwich, Conn.
Trinidad, Colo., (City of)	35	8	Planned	Connection with Colorado Interstate Gas Co.
Trunkline Gas Co.	278	20	Contracted	R. H. Fulton & Co.—Valley of Texas.
Trunkline Gas Co.	1,775	10-26	Planned	Includes 740 mi., 26-in., Lake Charles, La., to Tuscola sta. of Panhandle East. P. L. Co., and 1,035 mi., 10-24-in., Lake Charles, La., to McAllen, Tex., 10-52.
Trunkline Gas Co.	176	26	Under way	Houston Contracting Corp.—Section A, Main Line—Darnell to Longville, La.
Trunkline Gas Co.	180	26	Contracted	Anderson Bros. Corp.—Section B, Main Line—Darnell, La., to Senatobia, Miss.
Trunkline Gas Co.	184	26	Under way	R. H. Fulton & Co.—Section C, Main Line—Senatobia, Miss., to Paducah, Ky.
Trunkline Gas Co.	186	26	Under way	Mahoney Contracting Co.—Section D, Main Line—Tuscola to Joppa, Ill., 7-51.
Trunkline Gas Co.	262	20	Contracted	R. H. Fulton & Co.—Sections E and F, lateral lines—McAllen to Altair, Tex.
Trunkline Gas Co.	217	24	Contracted	Anderson Bros. Corp.—Sections G and H, lateral line—Longville, La., to Altair, Tex.
Trunkline Gas Co.	18	26	Under way	Houston Contracting Co.—Lake Arthur to Lacassine, La.
Trunkline Gas Co.	50	26	Contracted	Houston Contracting Co.—Longville to Northeast vicinity or Hineston, La.
Trunkline Gas Co.	126	26	Contracted	Houston Contracting Co.—Epps to Hineston, La.
Trunkline Gas Co.	42	16-20	Under way	Houston Contracting Co.—Section 1, lateral line, Lake Arthur to Longville, to point north of Iowa, La.
Trunkline Gas Co.	33	20	Under way	Houston Contracting Co.—Lake Arthur, La., to Lacassine, La.
Trunkline Gas Co.	33	20	Under way	Houston Contracting Co.—Longville to Lacassine, La.
United Gas Pipe Line Co.	93	6 to 16	Authorized	Fields, in Plaquemines Parish, to near New Orleans.
Utah Natural Gas Co.	325	22	Proposed	Four corners in southeastern Utah.
Valley Gas Pipe Line Co., Inc.	500	24	Proposed	Berclair, Goliad County, to Northeast Saratoga, Hardin County, Texas, to Vermilion Bay area of Louisiana.
Valley Gas Pipe Line Co., Inc.	1,000	30	Proposed	Saratoga northeast to Arcadia, La., to El Dorado, Jonesboro, Ark., Cape Girardeau, Mo., Lawrenceville, Ill., Terre Haute, Ind., and Atlanta, Ind., thence to northeast terminal point in southern Michigan.
Virginia Natural Gas Co.	153	..	Planned	Buckingham to Richmond and Portsmouth, Va.
Westcoast Transmission Co., Inc.	615	..	Planned	Oregon and Washington.
West Texas Gas Co.	38	6-10	Under way	Brodie Const. Co.—Anton, Tex., to Lubbock Air Base.

Table 4—Principal Foreign Crude-Oil Lines Planned and Under Way

Basrah Petroleum Co.	72	12-16	Under way	Zubair to Fao, Iraq.
Cia. de Petroleo Ganso Anzul, Ltd.	48	4	Planned	Ganso Azul field to Pucallpa on Upper Ucayali River, Peru.
Condor S.P.A. (Shell)	80	..	Planned	Genoa to Rho, near Milan, Italy.
Direccion General de Yacimientos Petroliferos Fiscales	409		Under way	Plaza Huincul-Bahia Blanca, Argentina.
Iraq Petroleum Co., Ltd.	556	30-32	Under way	Bechtel-Kirkuk, Iraq, to Banias, Syria, 1952.
Middle East Pipelines, Ltd.	800	34-36	Planned	Iran-Levantine Port.
Petroleos Mexicanos	160	11	Authorized	Minatitlan to Salina Cruz, Mexico.
Petroleos Mexicanos	145	13	Considered	Reynosa to Monterrey, Mexico.
Shell Caribbean Petroleum Co.	11	16	Authorized	Bachaquero (North) to Lagunillas, 5-51.
Shell Caribbean Petroleum Co.	165	30	Authorized	Palmarejo to terminals on the Paraguana Peninsula (Cardon and Las Piedras, Venezuela), 12-51.
Shell Caribbean Petroleum Co.	18	4	Under way	Mara to Palmarejo.
Shell Caribbean Petroleum Co.	16	14	Under way	Tia Juana to Cabimas (hot oil).
Winnipeg Pipe Line Co., Ltd.	75	10	Under way	Sparling-Fowler Co., Ltd.—Gretna to Winnipeg, Manitoba.

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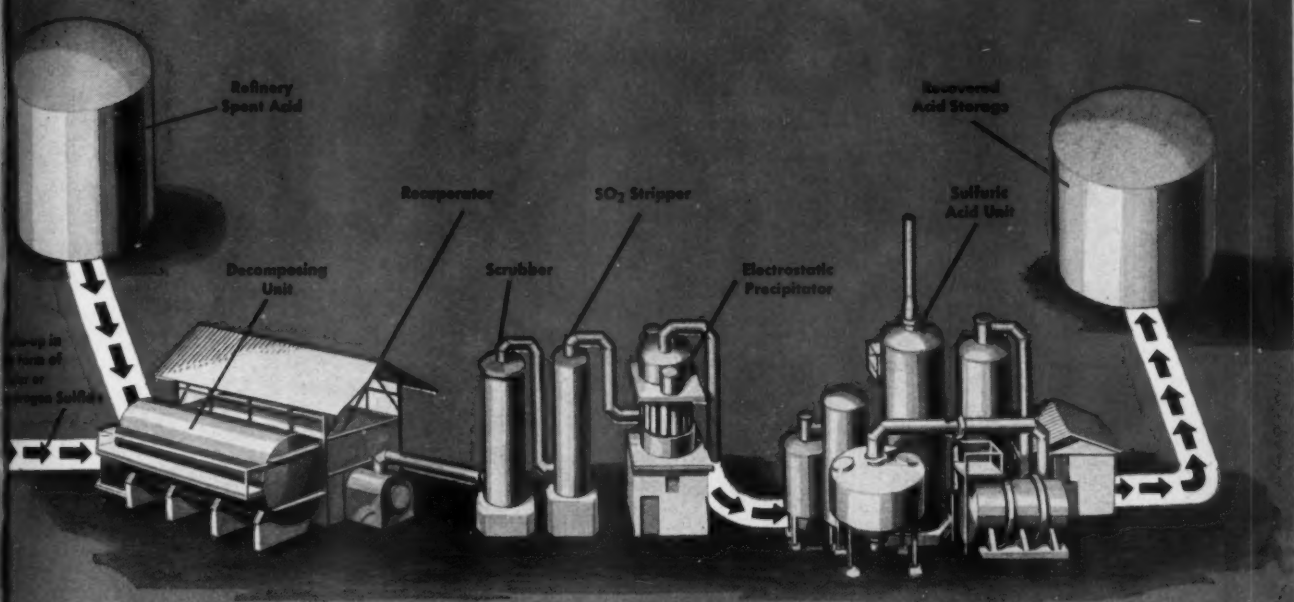

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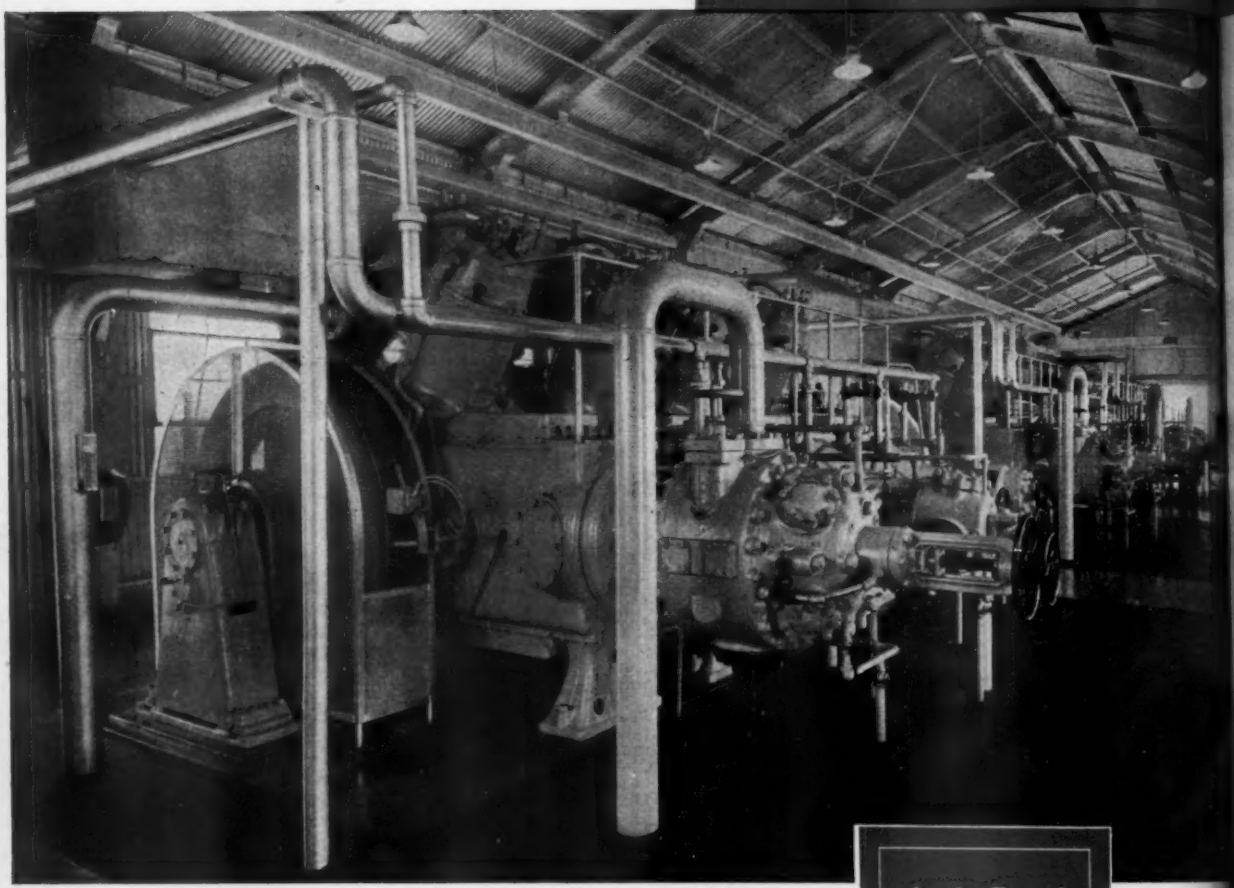

Line-up of four Cooper-Bessemer 8-cylinder GMV compressors, rated 880 hp at 300 rpm, in Magnolia Petroleum Company's Chitwood Gasoline Plant. Here, multi-service operation involves 4800 psi discharge in cycling, 1,015 psi in gasoline extraction, 250 psi for vapor recovery. Flexibility is a keynote.

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ANGLE

Compressors

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San Francisco, Cal. Houston, Dallas, Greggton, Pampa and Odessa, Texas Seattle, Wash.

# of gas conservation at Chitwood

WITH EFFICIENT, MULTI-SERVICE

GMV's

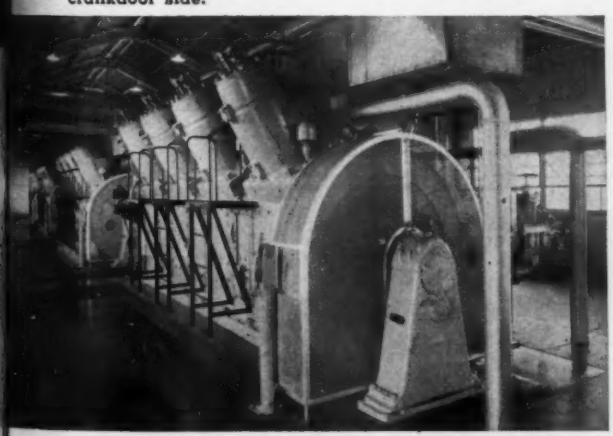
At the Chitwood plant, Magnolia Petroleum Company is doing an outstanding job of gas conservation . . . perhaps unique. The operation includes production of distillate by cycling . . . production of gasoline from casinghead gas . . . vapor recovery off of crude at atmospheric pressure . . . and a pressure maintenance operation.

The operation is of particular interest because it involves both high and low pressures, together with the vapor recovery service — all tied into the same compressor units.

As shown opposite and below, the compressors are efficient Cooper-Bessemer GMV Turboflows — chosen partly because they assure the true flexibility so essential in a multi-service operation such as this.

Whether your plans call for complex compressor service or the most simple kind of set-up, you'll be ahead with Cooper-Bessemer V-Angles. Then you'll be sure of economical installation, prolonged, low-cost performance, and the *flexibility* to meet fixed or variable requirements precisely. Better check with Cooper-Bessemer.

GMV's in Magnolia Chitwood plant, shown here from crankdoor side.



Exterior view of compressor building at Magnolia's Chitwood plant.

by **Cooper-Bessemer**

MOUNT VERNON, OHIO AND GROVE CITY, PENNA.

Tulsa Shreveport St. Louis Los Angeles Chicago Caracas, Venezuela

Table 5—Principal Foreign Products Lines Planned and Under Way

Company—	Miles	Inch	Status	Contractor, location, and completion date
Cia. des Pipe Lines Petroliers Francias	150	10	Planned	Le Havre to Paris, France.
Colombian Ministry of Petroleum	90	6	Planned	Puerto Berrio-La Dorado, Colombia.
Colombian Ministry of Petroleum	103	4	Planned	Puerto Berrio-Medellin, Colombia.
Colombian Ministry of Petroleum	75	4	Planned	Buena Ventura-Cali, Colombia.
Estrada de Ferro Santos Jundiai	32	10	Under way	Techint-Santos to Sao Paulo, Brazil.
Estrada de Ferro Santos Jundiai	32	18	Under way	Techint-Santos to Sao Paulo, Brazil, fuel-oil line.
Governments of Southern Rhodesia and Portuguese, East Africa	200	..	Considered	Beira, Portuguese Mozambique to Umtali, southern Rhodesia.
Northern Pipe Line, Ltd.	300	10	Under way	Montreal, Que., to Toronto, Ont.
Petroleos Mexicanos	160	11	Under way	Minatitlan to Salina Cruz, Mexico.
State of Cundinamarca, Colombia	120	..	Proposed	Puerto Salgar-Bogota, Colombia.

Table 6—Principal Foreign Natural-Gas Projects Planned and Under Way

Azienda Generale Italiana Petroli	....	..	Under way	Lodi-Milan, Italy.
Azienda Generale Italiana Petroli	....	..	Under way	Lodi-Turin, Italy.
Azienda Generale Italiana Petroli	....	..	Under way	Lodi-Genoa, Italy.
Direccion General del Gas del Estado	310	8	Under way	Plaza Huincul to Neuquen, Argentina, to the vicinity of General Conesa, Argentina.
Direccion General del Gas del Estado	62	..	Under way	Comodoro Rivadavia-Caleta Olivia, Argentina.
Northwest Natural Gas Co.	950	24	Planned	Alberta fields to Vancouver, B. C., Seattle, Wash., and Portland, Ore.
Petroleos Mexicanos	205	16	Considered	Monterrey to Torreon, Mexico.
Petroleos Mexicanos	260	20	Considered	Monterrey-Tampico-Poza Rica, Mexico.
Petroleos Mexicanos, Mexican Gas Co., and Industrial Gas Co.	600	..	Planned	Reynosa, Tamaulipas, to Mexico City, D. F.
Prairie Pipe Line, Ltd.	580	..	Planned	Windsor, Ont.-Montreal, Que.
Prairie Pipe Line, Ltd.	170	..	Planned	Pincer Creek, Alta.-Idaho-Canadian border.
Union Gas Co. of Canada, Ltd.	61	16	Under way	Shaw Const. Co.—Facilities, Dawn Township, County of Lambton, Province of Ontario.
Venezuela Atlantic Transmission Corp.	195	10-12-16	Planned	Williams Bros. de Venezuela, S.A.—El Placer near Las Mercedes, State of Guarico to Caracas, La Guaira, Maracay, and Velencia.
Westcoast Transmission Co., Ltd.	1,406	30	Planned	North Alberta, Vancouver, B. C., and northern California.
Western Pipe Lines	1,200	22	Planned	Southern Alberta, Winnipeg, to Duluth, Minn.

Table 7—Principal Domestic Crude-Oil Projects Completed

Company—	Miles	Inch	Contractor, location, and completion date
Buckeye Pipe Line Co.	23	8	Bills & Troth.—Sylvania, Ohio, to Monroe, Mich.
Gulf Refining Co.	29	8-10	Latex Const. Co.—Roscoe, Tex., to Snyder pool in Scurry County.
Humble Oil & Refining Co.	50	8	Trojan Const. Co.—Trawick field to southeast of Longview, Tex.
Humble Pipe Line Co.	33	8	Morrison Constructors.—Ft. Chadbourne to Ballinger, 9-15-50.
Humble Pipe Line Co.	195	18	Anderson Bros. Corp.—Eastern section of West Texas-Satsuma Station to Baytown, Tex.
Humble Pipe Line Co.	178	18	Morrison Const. Co.—Western section of West Texas-Satsuma Station to Baytown, Tex.
Lakehead Pipe Line Co., Inc.	321	18	Anderson Bros.—Neche, N. D., to Superior, Wis., 10-15-50.
Magnolia Pipe Line Co.	49	12	Bishop & Lock Const.—Colorado City to Hillsboro, Tex.
Magnolia Pipe Line Co.	49	12	Bishop & Lock Const.—Fullerton-New Mexico looping, 8-12-50.
Magnolia Pipe Line Co.	29	6-8	Shanks & Eustace, Bishop & Lock-Crosley & Hardy.—Scurry County looping, 2-10-50.
Mid-Valley Pipe Line Co.	1,053	20-22	Longview, Tex., to Mayersville, Miss.-Covington, Ky., to Lima, Ohio.
Mid-Valley Pipe Line Co.	105	22	Houston Contracting Co.—Oakland, Miss., to Henderson, Tenn., 7-31-50.
Mid-Valley Pipe Line Co.	68	20	Section 1-O—R. Burden Const. Corp.—Longview, Tex., to Dixie, La., 8-1-50.
Mid-Valley Pipe Line Co.	126	20	Section 2—Latex Const. Co.—Haynesville, La., to Mayersville, Miss.
Mid-Valley Pipe Line Co.	111	22	Section 3A—Associated Pipe Line Const.—Mayersville to Oakland, Miss.
Mid-Valley Pipe Line Co.	111	22	Section 3B-4A—Eastern Const., Inc.—Oakland, Miss., to Henderson, Tenn.
Mid-Valley Pipe Line Co.	153	22	Section 4B-5A—Eastern Const., Inc.—Henderson to Clarksville, Tenn.
Mid-Valley Pipe Line Co.	106	22	Section 5B-6A—Britton Const. Co.—Clarksville, Tenn., to Elizabethtown, Ky.
Mid-Valley Pipe Line Co.	89	22	Section 6B—H. L. Gentry Const. Co.—Hebron to Shepherdville, Ky., 8-31-50.
Mid-Valley Pipe Line Co.	124	20	Section 7—Britton Const. Co.—Hebron, Ky., to Eaton to Lima, Ohio.
Mid-Valley Pipe Line Co.	21	8	Section 8—Latex Const. Co.—Magnolia, Ark., to Haynesville, La.
Mid-Valley Pipe Line Co.	41	20	Latex Const. Co.—Haynesville, La., to Red River near Benton, La.
Mid-Valley Pipe Line Co.	120	20	Mahoney Contr. Co.—North of Ohio River to Lima, Ohio.
Mid-Valley Pipe Line Co.	44	12	Latex Const. Co.—Delhi, La., to Mayersville, Miss.
Mid-Valley Pipe Line Co.	34	6-8	Latex Const. Co.—Stephens to Magnolia, Ark., to Haynesville, La.
Naph-Sol Refining Co.	9	4	Young Const. Co.—Big Rapids, Mich., to Woodsville, Mich.
Ohio Oil Co.	54	20	Bechtel Corp.—Illinois.
Pan American Pipe Line Co.	80	10	Brown & Root.—From southern part of Scurry County, Texas, to a connection with Humble Pipe Line near San Angelo, Tex.
Pasotex Pipe Line Co.	22	8	Carl Dunn.—Kelly-Snyder field, Scurry County, Texas., to Colorado City station, Basin Pipe Line Co., Scurry County, Texas.
Pelican Oil Co.	60	6	Lake Charles to DeQuincy, La.
Phillips Pipe Line Co.	50	6-8	O. R. Burden Const.—Phillips tank farm, Sweeny, Tex., to Humble's Webster Station, Galveston County, Texas.
Portland Pipe Line Co.	236	18	Portland, Me., to Montreal, Que., Canada.
Portland Pipe Line Co.	85	18	Section 1—Oklahoma Contr. Co.—Portland, Me., to Gorham, N. H.
Portland Pipe Line Co.	85	18	Section 2—Associated Pipeline Contr., Inc.—Gorham, N. H., to international boundary near North Troy, Vt.
Portland Pipe Line Co.	68	18	Section 3—Fred Mannix.—Canadian boundary to Montreal.
Pure Oil Co.	27	4	McVean & Roberts.—Dollarhide field near Jal, N. M.

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Table 7—Principal Domestic Crude-Oil Projects Completed (Continued)

Company—	Miles	Inch	Contractor, location, and completion date
Richfield Oil Corp.	40	10	Bechtel Corp.—Cuyama Valley-Newhall, Calif.
Richfield Oil Corp.	20	14-16	Wheeler Station to Newhall, Calif.
Service Pipe Line Co.	25	8	Vaughn & Taylor Const. Co.—Beaver Creek and Riverton, Wyo., 9-30
Service Pipe Line Co.	36	8	Post, Tex.
Shell Pipe Line Corp.	39	10	McVean & Roberts.—McCamey to Kemper, Tex.
Skelly Oil Co.	7	3	Richland pool, Stafford County, Kansas, to Merle Pool, Kans.
Skelly Oil Co.	4	8	Gragg Const. Co.—Sedgwick and Butler counties, Kansas, 11-30.
Skelly Oil Co.	5	6	Gragg Const. Co.—Kingman and Reno counties, Kansas, 11-30.
Standard Oil Co. of Ohio and Shell Oil Cos.	56	8	Tulsa Const. Co.—Lima to Springfield, Ohio.
Sun Pipe Line Co.	11	6	Joe Titsworth.—Kountze to Saratoga, 11-50.
Sun Pipe Line Co.	12	8	J. J. Willis Const. Co.—Claremont to Cogsdell, 7-50.
Sun Pipe Line Co.	20	4-5-6	Crosley & Hardy.—Scurry gathering system.
Southern Pipe Line Corp.	5	4-6	Sheppard-Geiger.—Swan Lake to Point Comfort, 11-50.
Texas-Empire Pipe Line Co.	45	16	O. R. Burden Const. Co.—Wilmington, Ill., to East Chicago, Ind., 6-50.
Texas-New Mexico Pipe Line Co.	74	10	Carl H. Dunn.—Colorado City to No. Scurry and Kent Co., Tex., 5-50.
Texas Pipe Line Co.	45	12	L. R. Young Const. Co.—Clay City to Patoka, Ill., 6-15-50.
The Texas Co.	23	8	Pacific Pipe Const. Co.—Fillmore to Newhall, Calif.

Table 8—Principal Domestic Products Projects Completed

Buckeye Pipe Line Co.	140	8	H. L. Gentry.—Speedway City, Ind., to Lima, Ohio.
Great Lakes Pipe Line Co.	1,298	12	Looping from Tulsa north.
Great Lakes Pipe Line Co.	39	12	Midwestern Constructors, Inc.—Hawarden, Iowa, to Sioux Falls, S. D.
Great Lakes Pipe Line Co.	38	12	A. C. Holder Const. Co.—Sioux City to Hawarden, Iowa.
Great Lakes Pipe Line Co.	54	12	A. C. Holder Const. Co.—Ponca City to Barnsdall, Okla.
Great Lakes Pipe Line Co.	100	12	Sheehan Pipe Line Const. Co.—St. Paul to Faribault, Minn., state line to Faribault, Minn.
Great Lakes Pipe Line Co.	...	..	R. H. Fulton & Co.—Kansas and Missouri river crossings.
Great Lakes Pipe Line Co.	37	12	R. H. Fulton & Co.—Osceola to Des Moines, Iowa., 4-20-50.
Great Lakes Pipe Line Co.	37	12	Brodie Const. Co.—South of Bethany across Iowa line.
Great Lakes Pipe Line Co.	20	12	Williams Brothers Corp.—Mississippi River crossing and line to terminal and station.
Great Lakes Pipe Line Co.	47	12	Trojan Const. Co., Inc.—Irvington to Decatur, Neb.
Great Lakes Pipe Line Co.	47	12	Section 23—Midwestern Constructor, Inc.—Between Atchison, Kans., and Falls City, Neb.
Great Lakes Pipe Line Co.	47	12	Section 24—Midwestern Constructor, Inc.—Between Falls City and Nebraska City, Neb.
Great Lakes Pipe Line Co.	48	12	Section 25—Midwestern Constructor, Inc.—Between Nebraska City and Omaha, Neb.
Great Lakes Pipe Line Co.	189	12	Kansas City to Des Moines.
Great Lakes Pipe Line Co.	64	12	O. R. Burden Const. Corp.—North from Des Moines.
Great Lakes Pipe Line Co.	54	12	A. C. Holder Const. Co.—Ponca City to Barnsdall, Okla., 3-1-50.
Great Lakes Pipe Line Co.	224	12	Pacific Pipe Line & Engineers, Ltd.—Tulsa, Okla., to Kansas City, Kans., 3-50.
Great Lakes Pipe Line Co.	48	8	Trojan Const. Co., Inc.—Tulsa to Cushing, Okla., 4-50.
Inland Corp.	57	8	Tulsa Const. Co.—Lima to Springfield, Ohio.
Phillips Petroleum Co. and Shamrock Oil & Gas Co.	155	6	Cheek Construction Co.—La Junta-Denver, Colo.
Salt Lake Pipe Line Co.	242	6-8	Boise, Idaho, to Pasco, Wash., 12-50.
Salt Lake Pipe Line Co.	140	8	Bechtel Corp.—Boise to Baker, Idaho.
Salt Lake Pipe Line Co.	63	8	Oklahoma Contracting Corp.—Mountain Home to Boise, Idaho.
Standard Oil Co. (Ohio)	38	8	Toledo to Fostoria, Ohio.
Susquehanna Pipe Line Co.	126	8	H. L. Gentry Const. Co.—Toledo, Ohio, to Sarnia, Ont., Canada.
Tuscarora Oil Co., Ltd.	7	10	Pipe Line Const. & Drilling Co.—Shirley, Pa., to Barneytown Scraper Trap.
Tuscarora Oil Co., Ltd.	61	10	Pipe Line Const. & Drilling Co.—East Freedom, Pa., to Knappenberger Scraper Trap.
Tuscarora Oil Co., Ltd.	57	12	Pipe Line Const. & Drilling Co.—Tuckerton to Inglenook, Pa., 2-1-51.
Tuscarora Oil Co., Ltd.	60	12	Pipe Line Const. & Drilling Co.—Reading to Harrisburg, Pa., 2-1-50.

Table 9—Principal Domestic Natural-Gas Projects Completed

Acme Natural Gas Co.	25	6-10	Williams-Austin Co.—Ellwood to Butler, Pa., 12-1-50.
Alabama-Tennessee Natural Gas Co.	19	6	Decatur to Huntsville, Ala.
Alabama-Tennessee Natural Gas Co.	22	3	Decatur to Hartselle to Athens, Ala.
Alabama-Tennessee Natural Gas Co.	39	8	Lehman, Hoge & Scott.—Muscle Shoals to Decatur, Ala.
Alabama-Tennessee Natural Gas Co.	80	10	Lehman, Hoge & Scott.—Selmer, Tenn., to Muscle Shoals, Ala., 12-31-49.
Arkansas Louisiana Gas Co.	6	8	Oldham Bros.—North Lansing field to Whelan field, 12-50.
Arkansas Louisiana Gas Co.	8	14	Wood Engr. & Const. Co.—Loop line Texaskana, Ark., area.
Arkansas Louisiana Gas Co.	163	20	Waskom gas field, Texas, to Hot Springs County, Arkansas.
Arkansas Louisiana Gas Co.	69	20	Anderson Bros.—Waskom, Tex., to Magnolia, Ark.
Arkansas Louisiana Gas Co.	91	20	Latex Const. Co.—Magnolia, Ark., to Perla, Ark.
Arkansas Pipe Line Corp.	14	6	Snelling Co.—Oil City, La., to Shreveport-Longview.
Associated Natural Gas Pipe Line Co.	35	6-8	Sikeston and New Madrid, Mo.
Central Hudson Gas & Electric Corp.	40	8-20	Britton Contracting Co.—Between Port Jervis and Poughkeepsie, N. Y.
Central Kentucky Natural Gas Co.	42	20	Williams-Austin Co.—North Means Comp. Sta. to Foster, Ky., 12-15-50.
Chicago District Pipe Line Co.	41	24	Contr. & Material Co.—Joliet, Ill., to Chicago, 11-15-50.
Cities Service Gas Co.	57	4 to 10	North Hugoton field, Grant and Stanton counties, Kansas, gathering lines.
Cities Service Gas Co.	16	3-4	Kansas and Missouri.
Cities Service Gas Co.	29	16	Wichita to Hesston, Kans.
Cities Service Gas Co.	9	26	R. H. Fulton & Co.—Carson County, Texas, 12-50.
Cities Service Gas Co.	12	16	Company crews.—Ottawa County, Oklahoma, to Newton County, Missouri, 12-50.
Cities Service Gas Co.	12	16	M. E. White & Co.—Baldwin to Lawrence, Kans., 11-50.
Cities Service Gas Co.	14	12	M. E. White & Co.—Leavenworth to Atchison, Kans., 10-50.
City of Etowah, Tennessee			Engineering Construction Co.—Loops.
City of Indianapolis, Inc.	22	16	Contracting & Material Co.—Indianapolis to Panhandle East. System.
City of Sweetwater, Tennessee			Engineering Construction Co.—Tennessee loops, 11-15-50.

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Table 9—Principal Domestic Natural-Gas Projects Completed (Continued)

Company—	Miles	Inch	Contractor, location, and completion date
Colorado-Wyoming Gas Co.	30	10	Vaughn & Taylor Const. Co.—Mesa, Colo., to Boulder Junction, Colo.
Consumers Power Co.	8	6	Somerville Const. Co.—Morgan to Vermontville, Mich.
Consumers Gas Co.	21	8	Britton Contr. Co.—Millway to Reading, Pa., 5-12-50.
Dow Chemical Co.	30	12	Mahoney Contr. Co.—Loomis to Midland, Mich., 12-15-50.
East Ohio Gas Co.	24	20	Tulsa-Williams Co.—Austintown to Ohio-Pennsylvania line.
East Tennessee Natural Gas Co.	106	12-16	Oman Construction Co.—Lobelville to Tullahoma, Tenn.
East Tennessee Natural Gas Co.	120	12	Walters & Saigh Const. Co.—Chattanooga to Knoxville, Tenn., 1950.
East Tennessee Natural Gas Co.	185	16	Walters & Saigh Const. Co.—Lobelville to Chattanooga, Tenn., 1950.
East Tennessee Natural Gas Co.	130	12	N. A. Saigh Co., Inc.—Athens, via Chattanooga to Tullahoma, Tenn.
East Tennessee Natural Gas Co.	69	22-16-12	Oman Construction Co.—Oak Ridge to Athens, Tenn.
El Paso Natural Gas Co.	831	30	Company crews.—Jal, N. M., to Topock, Ariz. (built in conjunction with 514 of 34-in. to San Francisco, Calif., by Pacific Gas & Electric).
El Paso Natural Gas Co.	42	30	Company crews.—Deming Sta. to Valve 42, California line.
El Paso Natural Gas Co.	145	30	Company crews.—Wenden, Ariz., to Topock, Ariz., 8-50.
El Paso Natural Gas Co.	26	30	Company crews.—MP 230.2 California line to Valve 31.
El Paso Natural Gas Co.	68	30	Company crews.—Valve 56, California line Valve 64.
El Paso Natural Gas Co.	22	30	Company crews.—Pecos River to MP 74 California line.
El Paso Natural Gas Co.	31	30	Company crews.—Guadalupe Sta., to Valve 17-California line.
El Paso Natural Gas Co.	118	12	Company crews.—Goldsmith to Snyder, Tex.
El Paso Natural Gas Co.	117	30	Company crews.—26-in. California line to Topock, Ariz.
El Paso Natural Gas Co.	35	30	Company crews.—Pecos River to Keystone, Tex., 3-50.
El Paso Natural Gas Co.	12	26	Company crews.—MP 681 California end of loop line.
Harrisburg Gas Co.	20	8	Northeastern Const. Co.—Maytown to Steelton, Pa., 9-7-50.
Home Gas Co.	70	..	Orange, Sullivan-Rockland counties New York-Cattaraugus County, New York, areas.
Houston Pipe Line Co.	21	8-10	Sheppard-Geiger.—Village Mills, Hardin County, Texas, to Spurger, Tyler County, Texas, 12-20-50.
Kansas-Nebraska Natural Gas Co., Inc.	22	12	Cheek Const. Co.—North of Scott City, Kans., 6-50.
Kansas-Nebraska Natural Gas Co., Inc.	6	12	Cheek Const. Co.—Wakeeney to Palco, Kans., 6-50.
Kansas-Nebraska Natural Gas Co., Inc.	22	6-8	Simpson Contracting.—Cozad to North Platte, Neb., 7-50.
Kansas-Nebraska Natural Gas Co., Inc.	24	6	Simpson Contracting.—Loup City to Ord, Neb.
Kansas Power & Light Co.	28	12	M. E. White.—Pratt to St. John, Kans., 12-50.
Kansas Power & Light Co.	20	16	M. E. White.—Calista to Castleton, Kans., 3-50.
Kansas Power & Light Co.	14	16	M. E. White.—McPherson to Roxbury, Kans., 4-50.
Kings County Lighting Co.	3	12	Slattery Contr. Co.—57th St. and Eighth Ave., to 62nd St. and Bay Parkway, Brooklyn, N. Y.
Lion Oil Co.	60	6-2	George Tucker Pipe Line Const.—Gathering system, Snyder, Tex.
Lone Star Gas Co.	20	8-10-12	Company crews.—Alvrod, Snyder and Scurry counties, Tex., 1-1-51.
Michigan Consolidated Gas Co.	22	24	Ford, Bacon & Davis, Inc.—Austin field to Reed field, 9-7-50.
Michigan Gas Storage Co.	87	22	Mahoney Contracting Co.—St. John to Marion, Mich., 12-1-50.
Michigan-Wisconsin Pipe Line Co.	197	6-18	G. G. Griffis Const. Co.—Milwaukee to Green Bay, Two Rivers, Wis.
Michigan-Wisconsin Pipe Line Co.	42	14	G. G. Griffis Const. Co.—Waukesha County to Sheboygan County, Wisconsin, lateral.
Michigan-Wisconsin Pipe Line Co.	21	12	G. G. Griffis Const. Co.—Sheboygan County to Fond du Lac County, Wisconsin, lateral.
Michigan-Wisconsin Pipe Line Co.	51	10	G. G. Griffis Const. Co.—Fond du Lac County to Winnebago County, and Sheboygan County, Wisconsin, lateral.
Michigan-Wisconsin Pipe Line Co.	35	8	G. G. Griffis Const. Co.—Winnebago County to Brown County and Sheboygan County, Wisconsin, lateral.
Michigan-Wisconsin Pipe Line Co.	26	6	G. G. Griffis Const. Co.—Sheboygan County to Manitowoc County, Wisconsin.
Michigan-Wisconsin Pipe Line Co.	9	4	G. G. Griffis Const.—Manitowoc County, Wisconsin, lateral.
Montana-Dakota Utilities Co. and Montana-Wyoming Gas Pipe Line Co.	335	12	R. A. Conyes Const. Corp.—Worland, Wyo., to Baker, Mont.
Montana Power Co.	21	12	Deaton & Sons, Inc.—Vicinity of Billings, Mont.
Montana Power Co.	83	12	Deaton & Sons, Inc.—Bozeman to Butte, Mont., 7-1-50.
New York State Natural Gas Corp.	56	30	Loops in Tioga County, Pennsylvania, and Steuben, Chemung, Schuyler and Tompkins counties, New York.
New York State Natural Gas Corp.	42	20	Tulsa-Williams Co.—Ohio-Pennsylvania line to Bakerstown, Pa.
New York State Natural Gas Corp.	21	20	Williams-Austin Co.—Tonkin Sta. to Bakerstown, Pa., 12-1-50.
New York State Natural Gas Corp.	45	16-18	Pipe Line Const. & Drilling Co.—Leidy field to Westfield, Pa.
New York State Natural Gas Corp.	53	16	Loops in Greene, Washington, Allegheny, Westmoreland counties.
New York State Natural Gas Corp.	26	16	Williams-Austin Co.—Charleroi to Murraysville, Pa., 8-1.
Niagara Mohawk Power Corp.	35	10-14	Williams-Austin Co.—Thermal Station to Fulton, N. Y.
Northern Natural Gas Co.	634	20-26	R. H. Fulton, Midwestern, R. B. Potashnick, Trojan, Knupp.—Garden City, Kans., to Farmington, Minn.
Northern Natural Gas Co.	178	2-12	Bills & Troth Const. Co.-Reese Bros., Midwestern, Cheek, R. H. Fulton.—Gathering lines, Garden City, Kans., to Minnesota.
Northern Natural Gas Co.	40	26	Loop 1—R. H. Fulton & Co.—North of Skellytown, Tex., Station in Pampa Station area.
Northern Natural Gas Co.	75	26	Loop 2—R. H. Fulton & Co.—North of Beaver, Okla.
Northern Natural Gas Co.	33	26	Loop 3—R. H. Fulton & Co.—Mullinville, Kans., Station.
Northern Natural Gas Co.	72	26	Loop 4—R. H. Fulton & Co.—Bushton to Minneapolis, Kans.
Northern Natural Gas Co.	155	20	Loop 5—R. H. Fulton & Co.—Garden City to Bushton, Kans., 11-1-50.
Northern Natural Gas Co.	43	26	Loop 6—Midwestern Construction, Inc.—Palmyra, Neb., Sta., to Oakland, Iowa, Sta.
Northern Natural Gas Co.	65	26	Loop 7—Midwestern Construction, Inc.—Northeastward from Oakland, Iowa, Station.
Northern Natural Gas Co.	31	26	Loop 8—R. B. Potashnick Co.—North of Ogden, Iowa.
Northern Natural Gas Co.	41	26	Loop 9—R. B. Potashnick Co.—Northward from Ventura, Iowa, Sta.
Northern Natural Gas Co.	40	26	Loop 10—R. B. Potashnick Co.—Ventura, Iowa, Station.
Northern Natural Gas Co.	37	10	Knupp Const. Co.—Ames to Marshalltown, Iowa.
Northern Natural Gas Co.	24	20-24	R. H. Fulton & Co.—Kansas (near Liberal).
Northern Natural Gas Co.	26	20	R. H. Fulton & Co.—Garden City, Kans.
Northern Natural Gas Co.	41	20	R. H. Fulton & Co.—Southwest from Garden City, Kans.
Northern Natural Gas Co.	46	4-12	R. H. Fulton & Co., Garden City, Kans.
Northern Natural Gas Co.	77	20-24	Eastern Const. Co., Inc.—Looping in Kansas, Nebraska, Iowa.
Northern Natural Gas Co.	111	24	R. B. Potashnick.—Ogden, Iowa, to St. Paul, Minn. Work to begin 6-1-50.
Northern Natural Gas Co.	222	26	R. H. Fulton & Co.—Borger, Tex., to Nebraska line.
Northern Natural Gas Co.	63	4-12	Cheek Const. Co.—Gathering line, vicinity of Hugoton, Kans.
Northern Natural Gas Co.	76	4-12	Reese Bros. Const. Co.—Gathering system in Hugoton, Kans., dist.
Ohio Fuel Gas Co.	20	20	Somerville Const. Co.—Mt. Gilead to Leesville, Ohio, 7-15-50.
Ohio Fuel Gas Co.	12	16	Somerville Const. Co.—Amherst to Berlinville, Ohio, 7-10-50.

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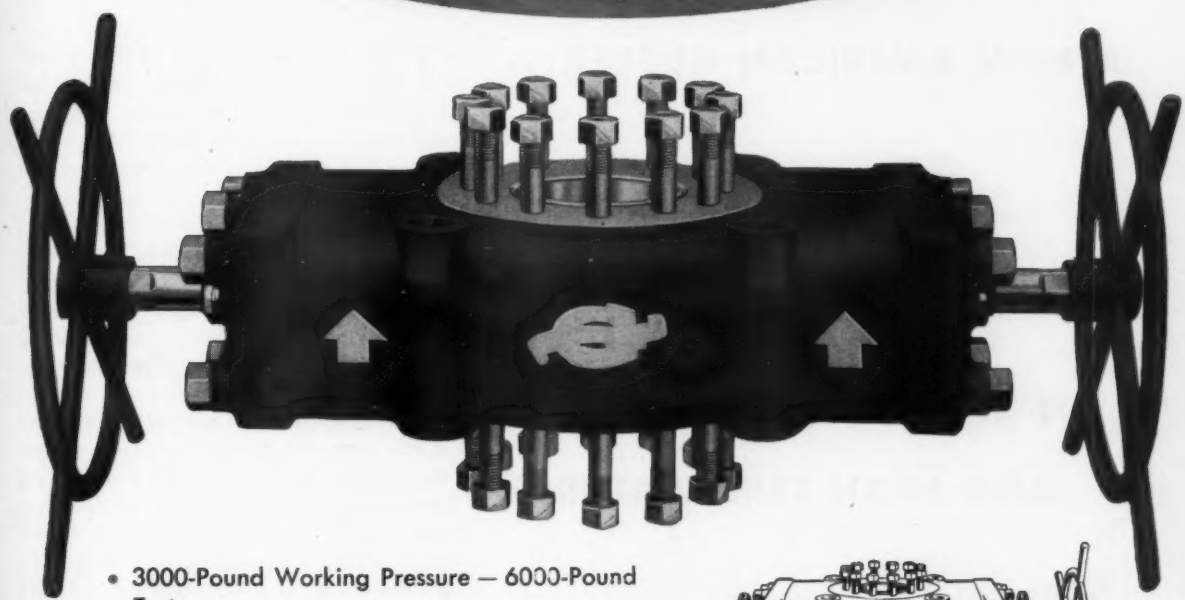

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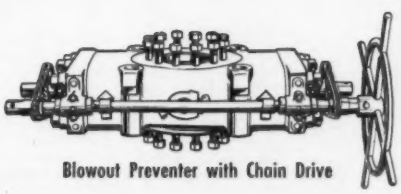

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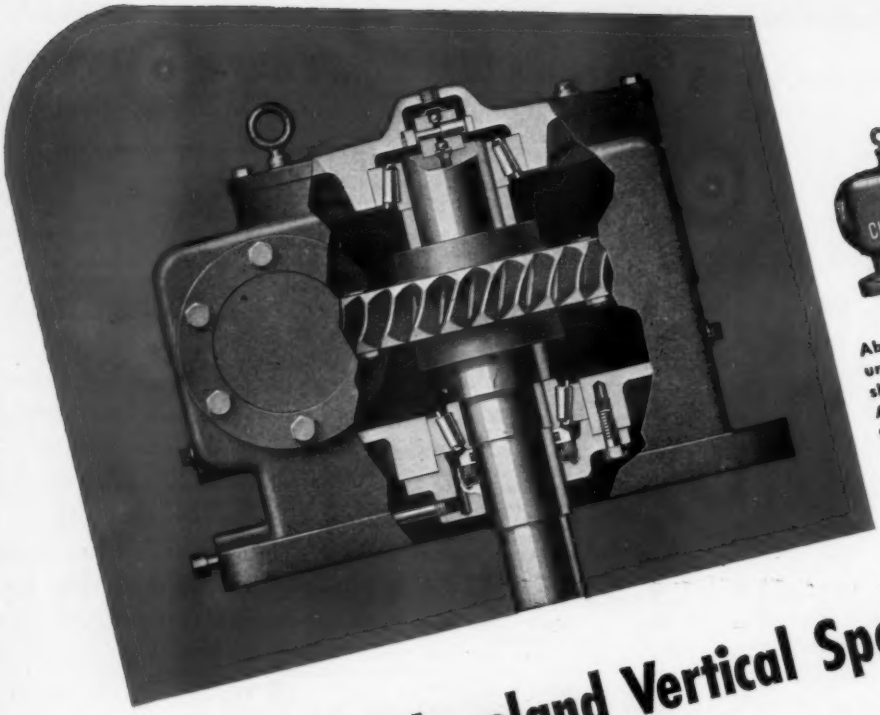
Table 9—Principal Domestic Natural-Gas Projects Completed (Continued)

Company—	Miles	Inch	Contractor, location, and completion date
Oklahoma Natural Gas Co.	40	16	Trojan Const. Co.—Ninnekah to County Line, Okla.
Oklahoma Natural Gas Co.	53	26	Trojan Const. Co.—Edmond to Depew, Okla., 3-15-51.
Oklahoma Natural Gas Co.	22	10	Trojan Const. Co.-Tulsa Pipe Coating.—Guthrie to Stillwater, Okla.
Pacific Gas & Electric Co.	47	8	Salinas to Kilig City, Calif.
Pacific Gas & Electric Co.	506	34	Bechtel-Price-Conyes Corp.—Topock, Ariz., to Milpitas, Calif.
Pacific Lighting Corp.	41	30	Puente to March field, Calif.
Panhandle Eastern Pipe Line Co.	...	4-12	Knupp Const. Co., Inc.—Hugoton gas field.
Panhandle Eastern Pipe Line Co.	64	2-12	Knupp Const. Co., Inc.—Stevens-Grant counties, Kansas, to Texas County, Oklahoma, 5-31-50.
Panhandle Eastern Pipe Line Co.	69	26	Midwestern Constructors, Inc.—Loop lines from Olpe to Hugoton, Kans.
Panhandle Eastern Pipe Line Co.	14	26	R. H. Fulton.—Hitchland, Tex., northward looping present system.
Panhandle Eastern Pipe Line Co.	145	26	Midwestern Constructors-Anderson Bros.-E. H. Mahoney Const.—Looping present system, Liberal, Kans., eastward.
Panhandle Eastern Pipe Line Co.	23	30	Anderson Bros., Inc.—Tuscola, Ill., eastward, looping present system.
Peoples Natural Gas Co.	15	8-10	Fabey & Son.—Homewood to Midland, Pa., 11-15-50.
Plains Natural Gas Co.	...	...	Oklahoma-Kansas area, Hugoton field gathering system.
Phillips Petroleum Co.	118	3-26	Vaughn & Taylor Const.—Gas gathering, Sherman and Hansford counties, Texas.
Phillips Petroleum Co.	25	...	Vaughn & Taylor Const. Co.—Gathering system, West Edmond, Okla.
Phillips Petroleum Co.	45	2-24	Vaughn & Taylor Const. Co.—Gathering system near Andrews, Tex.
Roanoke Pipe Line Co.	30	8	Lehman, Hoge & Scott.—Gala, Va., to Roanoke, 8-31-50.
Southern California Gas Co.	83	30	Midwestern Constructors.—Whitewater, Riverside County, California, to Puente, Los Angeles County, California, 10-1.
Southern Natural Gas Co.	32	16	Sheehan Pipe Line Const. Co.—Wetumpka to Tallassee, Ala.
Southern Natural Gas Co.	24	24	Sheehan Pipe Line Const. Co.—Loops to Miss., Ala., Ga.
Southern Natural Gas Co.	161	16-18	Associated Pipeline Contractors.—Selma, Mitchell Village to Elmore, Ala., 2-1-51.
Southern Natural Gas Co.	85	18	Sheehan Pipe Line Const. Co.—Miss.-Ala. state line to Selma, Ala., 11-1-50.
Southern Natural Gas Co.	95	18	Sheehan Pipe Line Const. Co.—Gwinville to Miss-Ala. state line, 11-1-50.
Southern Natural Gas Co.	180	18	Sheehan Pipe Line Const. Co.—Gwinville, Miss., to Selma, Ala.
Southern Natural Gas Co.	11	24	Sheehan Pipe Line Const. Co.—Benton to Pickens, Miss.
Southern Union Gas Co.	51	6-14	Spafford-Walton-Ferguson-Geo. Tucker Const.—New Mexico loops and laterals.
South Jersey Gas Co.	80	12-16	G. G. Griffis, Inc.—Pleasantville, N. J., to Woodbury, N. J.
Sullivan, Long & Haggerty	60	up to 10	Carruth Pipe Line Corp.—Vicinity of Dyersburg, Tenn., 11-15-50.
Tennessee Gas Transmission Co.	526	30	Looping.
Tennessee Gas Transmission Co.	100	26	Looping.
Tennessee Gas Transmission Co.	395	26	Northeast Kentucky-Buffalo, N. Y., extension.
Tennessee Gas Transmission Co.	70	26-30	Anderson Bros. Corp.—Between Stations 104 and 110.
Tennessee Gas Transmission Co.	174	30	Price-Morrison-western Tennessee and Kentucky.
Tennessee Gas Transmission Co.	47	30	Morrison Const. Co.—Near Glasgow, northeastward to near Lebanon, Ky.
Tennessee Gas Transmission Co.	28	30	Morrison Const. Co.—Near Scottsville, southwestward to near White House, Tenn.
Tennessee Gas Transmission Co.	170	26-30	Anderson Brothers Corp.—Kentucky.
Tennessee Gas Transmission Co.	99	30	H. C. Price Co.—Near Dickson, southwestward to Selmer, Tenn, Fall 10-1-50.
Tennessee Gas Transmission Co.	63	26	H. C. Price Co.—South bank of Mahoning River near Youngstown, Ohio, and extending southwestward.
Tennessee Gas Transmission Co.	63	26	H. C. Price Co.—North bank of Muskingum River and extending northeastward.
Tennessee Gas Transmission Co.	47	26	H. C. Price Co.—South bank of Muskingum River and extending southwestward.
Tennessee Gas Transmission Co.	47	26	H. C. Price Co.—North bank of Ohio River, and extending northeastward.
Tennessee Gas Transmission Co.	105	16	Latex Const. Co.—Bayou Sale to Kinder, La.
Tennessee Gas Transmission Co.	15	6	Latex Const. Co.—Near Tomball, Tex., 3-1-50.
Tennessee Gas Transmission Co.	103	26-30	Oklahoma Contracting Corp.—Premont to El Campo, Tex.
Tennessee Gas Transmission Co.	40	16	Britton Contracting Co., Inc.—Beaver Falls and Pittsburgh, Pa
Tennessee Gas Transmission Co.	90	30	Latex Const. Co.—West Monroe to Many, La.
Tennessee Gas Transmission Co.	33	30	Latex Const. Co.—Jones, La., to Mississippi River.
Tennessee Gas Transmission Co.	91	30	Oklahoma Contracting Corp.—Holly Springs, Miss., to south.
Tennessee Gas Transmission Co.	95	20	Latex Const. Co.—Natchitoches to Kinder, La.
Tennessee Gas Transmission Co.	18	30	Anderson Bros.—Near Union City to Buckeye, Ky.
Tennessee Gas Transmission Co.	28	12	Massey Const.—Near El Campo to Traitor, Tex.
Tennessee Gas Transmission Co.	71	16-12	Latex Const. Co.—Kinder to Grand Chenier, La., 8-10-50.
Tennessee Gas Transmission Co.	32	16	Lateral near Bessemer, Pa.
Texas Eastern Transmission Corp.	109	16	Smith Contracting Corp.—Baytown to Provident City, Tex.
Texas Eastern Transmission Corp.	18	8	Silsbee and Hastings, Tex., area.
Texas Eastern Transmission Corp.	33	20	Associated Pipe Line Contr., Inc.—Hankamer to Beaumont, Tex., April 1950.
Texas Gas Transmission Corp.	723	26	Lisbon, La., to Middleton, Ohio.
Texas Gas Transmission Corp.	8	2	Modern Welding Co., Inc.—Utica to Livermore, Ky.
Texas Gas Transmission Corp.	43	20	Fowler Bros.—Carthage to Red River field.
Texas Gas Transmission Corp.	103	20	N. A. Saigh Co., Inc.—Carthage, Tex., to near Lisbon, La.
Texas Gas Transmission Corp.	63	20	Oklahoma Contracting Co.—Sharon Station.
Texas Illinois Gas Pipe Line Corp.	110	30	H. C. Price.—Hungerford to Texarkana.
Texas Illinois Gas Pipe Line Corp.	36	24	H. C. Price.—Old Ocean field near Hungerford.
Transcontinental Gas Pipe Line Co.	1,832	30	Rio Grande Valley, Tex., to New York City.
Transcontinental Gas Pipe Line Co.	80	10-14	Schedule A—Massey Const. Co.—Mercedes to south of Falfurrias, Tex.
Transcontinental Gas Pipe Line Co.	108	24	Schedule B—H. B. Zachry Co.—South of Falfurrias to Edna, Tex.
Transcontinental Gas Pipe Line Co.	85	30	Williams Bros.-Davis Co.—Porters to El Paso, Tex., 11-7-50.
Transcontinental Gas Pipe Line Co.	45	26	Schedule B.
Transcontinental Gas Pipe Line Co.	115	26-30	Schedule C—Edna to Porters, Tex.
Transcontinental Gas Pipe Line Co.	92	30	Schedule D—Texas Southern Contr. Co.—Porters to Deweyville, Tex.
Transcontinental Gas Pipe Line Co.	81	30	Schedule E—Anderson Bros. Corp.—Sabine River to Eunice, La.
Transcontinental Gas Pipe Line Co.	100	30	Section 9—R. H. Fulton & Co.—Catawba River, North Carolina, to North Carolina-Virginia boundary.



Above—Exterior view Type ND unit. NU unit (not shown) has slow-speed shaft extending up. At left—Cutaway section to show tapered roller bearings on gear shaft, positive face-type oil seal, unique lubricating pump and oil drain at base of housing.

A new series of Cleveland Vertical Speed Reducers

● NU and ND worm gear units—in seven sizes each (50 to 500) are ready for prompt delivery. They are particularly suited to such equipment as agitators and mixers, and to overhead chain conveyors as well.

Outstanding features which insure that these new vertical drives will deliver long and trouble-free service are:

Extra heavy tapered roller bearings on gear shaft.

Continuous lubrication of top bearing by positively driven pump mounted on upper end of gear shaft (on lower end in Type NU).

Positive face-type oil seal below lower gear shaft bearing to prevent leakage.

Heavy base flange extends around all four sides. All parts liberally sized and precision built.

Write for Bulletin 125 for full description of Types NU and ND, including capacity charts and dimension data. The Cleveland Worm & Gear Co., 3286 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers, Limited.

Table 9--Principal Domestic Natural-Gas Projects Completed (Continued)

Company—	Miles	Inch	Contractor, location, and completion date
Transcontinental Gas Pipe Line Co.	86	30	Section 10—O. R. Smith Contracting Corp.—North Carolina-Virginia boundary to James River, Va.
Transcontinental Gas Pipe Line Co.	110	30	Section 11—O. R. Smith Contracting Corp.—James River, Va., to Potomac River, Virginia.
Transcontinental Gas Pipe Line Co.	75	30	Section 12—Associated Pipe Line Contr., Inc.—Potomac River to Susquehanna River or Montgomery County, Maryland, to York County, Pennsylvania.
Transcontinental Gas Pipe Line Co.	90	30	Section 13—Wunderlich & Griffis Const. Co.—Susquehanna, Pa., to Delaware River.
Transcontinental Gas Pipe Line Co.	61	30	Section 14—Wunderlich & Griffis Const.—Delaware River to Hackensack River, N. J.
Transcontinental Gas Pipe Line Co.	23	30	Schedule 15—Oklahoma Contracting Co.—Edgewater to Elizabeth, N. J.
Transcontinental Gas Pipe Line Co.	98	6-14	Texas Unit 1—Altgelt Const. Co.—Wharton, Tex., area.
Transcontinental Gas Pipe Line Co.	58	4-14	Texas Unit 1—T & R Const. Co.—El Campo, Tex., area.
Transcontinental Gas Pipe Line Co.	38	4-8	Texas Unit 2—Shanks & Eustace, Inc.—Sinton, Tex., area.
Transcontinental Gas Pipe Line Co.	61	6-10	Texas Unit 2—Victoria Oil Field Maint. Co.—Dix, Tex., area.
Transcontinental Gas Pipe Line Co.	50	18-20	Texas Unit 2—Texas Southern Contracting Co.—Eunice, La., to south, 8-15-50.
Transcontinental Gas Pipe Line Co.	380	8-16	Laterals to gas field.
Transcontinental Gas Pipe Line Co.	85	4-14	Latex Const. Co.—South Louisiana.
Transcontinental Gas Pipe Line Co.	78	30	Ray L. Smith & Son., Inc.—Delaware River to southwest.
Transcontinental Gas Pipe Line Co.	102	30	Section 8—R. H. Fulton & Co.—Saluda River, S. C., to Catawba River, N. C.
Transcontinental Gas Pipe Line Co.	86	30	Section 7—Williams Bros. Co.—Danielsville, Ga., to Saluda River, S. C.
Transcontinental Gas Pipe Line Co.	216	30	Midwestern Const., Inc.—Demopolis, Ala., to Newnan, Ga.
Transcontinental Gas Pipe Line Co.	108	30	Section 6—Williams Bros. Co.—Newnan to Danielsville, Ga.
United Fuel Gas Co.	32	30	Roane, Calhoun, and Wetzel counties, West Virginia.
United Gas Pipe Line Co.	12	12	Texas Southern Contr. Co.—Soso toward Meridian, Miss., 7-15-50.
United Gas Pipe Line Co.	50	30	Texas Louisiana Contr.—Magnet to Missouri cities, 1-51.
United Gas Pipe Line Co.	19	16	Brown & Root, Inc.—North Junction of Frio Road, San Antonio, Tex.
United Gas Pipe Line Co.	14	16	Brown & Root, Inc.—Cabeza Creek field to Burnell-Converse Main Line, Texas.
United Gas Pipe Line Co.	67	20	O. C. Whitaker-Brown & Root, Inc.—Loop Carthage-Sterlington line, Louisiana.
United Gas Pipe Line Co.	9	10	Murray Const. Co.—Humble gasoline plant to Bruni-Somerset Main Line, Texas.
United Gas Pipe Line Co.	25	16	J. Ray McDermott & Co., Inc.—St. Rose to Barataria-New Orleans Main Line, New Orleans, La.
United Gas Pipe Line Co.	28	24	Brown & Root, Inc.—Missouri City Junction to Shell refinery, Houston, Tex.
United Gas Pipe Line Co.	90	16	Texas Southern Contracting Co.—West Bay field to New Orleans.
United Gas Pipe Line Co.	26	16	Texas Southern Contr. Co.—Gulf Ref. to Johnsons Bayou, 10-15.
United Gas Pipe Line Co.	23	16	Texas Southern Contr. Co.—Mud Lake field, Louisiana, to Gulf Ref. Co., Tex., 12-6.
United Gas Pipe Line Co.	52	12	Brown & Root, Inc.—Soso field to Meridian, Miss.
United Gas Pipe Line Co.	25	16	J. Ray McDermott & Co., Inc.—St. Charles Parish to Orleans Parish, Louisiana.
United Gas Pipe Line Co.	42	20	O. C. Whitaker Co.—Ruston to Red River, La.
United Gas Pipe Line Co.	105	20	O. C. Whitaker-Brown & Root, Inc.—Near Carthage, Tex., to near Sterlington, La.
United Natural Gas Co.	40	12	Williams Bros. Corp.—Knox Station to line adjacent to Sharon, Pa., area.
West Texas Gas Co.	38	6-10	Brodie Const. Co.—Anton, Tex., to Lubbock Air Base.
Whitehaven Utility Commission	20	2 to 12	Modern Welding Co., Inc.—Tennessee.

Table 10—Foreign Crude-Oil Projects Completed

Direccion General de Yacimientos Petroliferos Fiscales	25	...	Tupungato-Lujan de Cuyo, Argentina.
Interprovincial Pipe Line Co.	1,150	16-18-20	Edmonton, Alta., to Superior, Wis.
Interprovincial Pipe Line Co.	322	18	Anderson Bros.—Gretna to Superior, Wis., 10-50.
Interprovincial Pipe Line Co.	336	16	Williams Bros.—Regina to Gretna, Man.
Interprovincial Pipe Line Co.	450	20	Canadian-Bechtel, Ltd.—Edmonton, Alta., to Regina, Sask.
Mene Grande Oil and Creole Petroleum	10	16	Oficina to Anaco, Venezuela.
Mene Grande Oil and Creole Petroleum	4	16	Anaco to Puerto La Cruz.
Petroleos Mexicanos	280	13	Poza Rica to Salamanca, Mexico.
Trans-Arabian Pipe Line Co.	1,068	30-31	Abqaiq, Saudi Arabia, to Sidon, Lebanon, 10-1.
Trans-Arabian Pipe Line Co.	850	30-31	International Bechtel, Inc.—Abqaiq, Saudi Arabia, to Sidon, Lebanon.
Trans-Arabian Pipe Line Co.	218	30-31	Williams Bros.—Abqaiq, Saudi Arabia, to Sidon, Lebanon.
Venezuelan Atlantic Refining Co.	12	8	Ruiz to Sabon, Venezuela.

Table 11—Foreign Products Projects Completed

Creole Petroleum Corp.	10	8	Macco-Panpacific-Catia de la Mar to Nueva Caracas, Venezuela, 11-50.
Shell Caribbean Petroleum Co.	26	2	La Paz to Palmarejo, Venezuela (butane and natural gasoline).
Shell Caribbean Petroleum Co.	17	3	Mara to La Paz, Venezuela (butane).
Shell Caribbean Petroleum Co.	15	16	Carrasquero (Rio Limon), to Mara, Venezuela (water).
Shell Caribbean Petroleum Co.	19	12	Mara to La Paz, Venezuela (water).

Table 12—Foreign Natural-Gas Projects Completed

Canadian Western Natural Gas Co., Ltd.	27	12	Company crews.—Jumping Pound field, Calgary.
Northwestern Utilities, Ltd.	22	8	Company crews.—Devon to Edmonton, Alta., 5-31-50.
Northwestern Utilities, Ltd.	19	12-6	Company crews.—2 miles east of Edmonton, town of Ft. Saskatchewan, 10-27-50.
Northwestern Utilities, Ltd.	50	20-14	Company crews.—Distribution mains in the city of Edmonton and town of Ft. Saskatchewan, 12-15-50.
Northwestern Utilities, Ltd.	35	16-2	Company crews.—Gathering lines in the Viking-Kinsella field, Alberta, 9-30.

REVIEW and FORECAST

New Construction to Boost Refining Capacity 110,000 Bbl. Daily

by R. B. Tuttle

CRUDE-OIL input capacity on United States and Canadian refineries in currently scheduled for an increase of 110,000 bbl. daily in 1951. The United States portion of this increase is 75,000 bbl. per day. Nearly 150,000 bbl. of daily crude-oil capacity is represented by "under way" and "authorized" expansion projects scheduled for 1951-1952 completion in the two nations. Aside from any capacity increases brought about by an all-out war, total daily crude-oil charging capacity for both United States and Canadian refineries is expected to be boosted by another 50,000 bbl. during this year, bringing the total increase to 200,000 bbl. daily.

New catalytic cracking plants in this country, scheduled for operation this year, represent more than 200,000 bbl. of daily charging capacity. Total capacity of all cat cracking units now building or authorized for United States and Canadian refineries is slightly above 256,000 bbl. daily. Canadian refineries account for 25,000 bbl. of this daily capacity now under construction and 9,000 bbl. daily planned for 1952 completion. At the beginning of 1951 a number of United States refinery expansion programs involving cat crackers are well into the planning stage. Despite demands of a total war, these programs appear to be on the way for authorization this year.

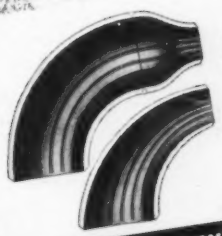
Capacity on new and expanded facilities for production of blending components and upgrading of various gasolines, scheduled for completion during 1951, runs to about 75,000 bbl. daily. The major portion of this capacity is on new units for gasoline upgrading. Except for 30,000 bbl. of daily capacity the new units for upgrading gasolines are being installed in medium capacity refineries throughout the United States. The total capacity of these smaller-refinery light-product processing units is 15,400 bbl. daily.

Active Refinery-Building Projects

Company, location, and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Ashland Oil & Refining Co., Buffalo:				
Plant expansion	.....	Planned	.....	.....
Ashland Oil & Refining Co., Canton, Ohio:				
Expand cat. poly unit	.....	Planned	.....	.....
Aurora Gasoline Co., Detroit:				
Platforming unit, bbl. per day	4,500	Building	Early '51	Universal Oil Products Co.
Bay Petroleum Corp., Chalmette, La.:				
Expand crude-oil capacity, bbl. per day	16,000	Building	1951	Universal Oil Products Co., Procon, Inc.
Cat. cracker, bbl. per day	6,000	Building	1951	Universal Oil Products Co., Procon. Inc.
Bell Oil & Gas Co., Grandfield, Okla.:				
Platforming unit, bbl. per day	1,500	Building	.....	Universal Oil Products Co.
British American Oil Co., Ltd., Moose Jaw, Sask., Canada:				
Refinery expansion, bbl. per day	10,000	Building	Late '51	Process Engineers, Inc.
Cat. cracker, cat. poly and coking units	.....	Building	Late '51	Process Engineers, Inc.
Gas-concentration plant and storage facilities	.....	Building	Late '51	Process Engineers, Inc.
British American Oil Co., Ltd., Edmonton, Alta., Canada:				
New refinery, bbl. per day	5,500	Building	Mid '51	M. W. Kellogg Co.
California Refining Co., Perth Amboy, N. J.:				
Cat. cracker, bbl. per day	25,000	Building	Early '51	Houdry Process Corp.; C. F. Braun
Reformer, bbl. per day	10,000	Building	Early '51	C. F. Braun
Alkylation unit, bbl. per day	5,000	Building	Early '51	M. W. Kellogg Co.
Crude-oil units, bbl. per day	50,000	Building	Early '51	C. F. Braun
Gasoline treater, bbl. per day	20,000	Building	Early '51	Catalytic Construction Co.
Boiler plant, lb. per hour	300,000	Building	Early '51	C. F. Braun
Calumet Refining Co., Burnham, Ill.:				
New office building	.....	Building	Early '51	Bachman & Bertram
Canadian Oil Refineries, Ltd., Sarnia, Ont., Canada:				
New refinery	.....	Building	Early '52	Stone & Webster Engr. Corp.
Atmospheric and vacuum dist. units, bbl. per day	20,000	Building	Early '52	E. B. Badger & Sons Co.
Cat. cracking, gas processing, and cat. poly units, bbl. per day	14,000	Building	Early '52	M. W. Kellogg Co.
Cat. reforming unit, bbl. per day	4,000	Building	Early '52	.....
Storage, bbl.	1,600,000	Building	Early '52	Horton Steel Co.
Wharf and offsite facilities	.....	Building	Early '52	.....
Champlin Refining Co., Enid, Okla.:				
Heptane bright-stock stripper, bbl. per day	12,000	Building	Early '51	Champlin
Cities Service Oil Co., Ponca City, Okla.:				
Cat. cracker, bbl. per day	10,000	Contracted	Early '52	M. W. Kellogg Co.
Continental Oil Co., Lake Charles, La.:				
Modernize and enlarge refinery, bbl. per day	22,700	Contracted	Early '52	E. B. Badger & Sons Co.
Cat. cracker	.....	Contracted	Early '52	E. B. Badger & Sons Co.
Cosden Petroleum Corp., Big Spring, Tex.:				
Crude-oil storage, bbl.	240,000	Building	Early '51	Steel Tank Constr.
Derby Oil Co., Wichita, Kans.:				
Cat. cracker, bbl. per day	7,500	Building	Mid '51	The Fluor Corp., Ltd.
Poly unit	.....	Building	Mid '51	Universal Oil Products Co.; The Fluor Corp., Ltd.

Ladish Reducing Elbows

PATENT PENDING



FLOW EFFICIENCY

Uniform, gradual reduction in diameter from face to face of the fitting, plus full, effective center-line radius reduces turbulence and assures maximum flow efficiency.

SEAMLESS DESIGN

The first practical Seamless Reducing Elbow, this Ladish development for which a patent is pending, is formed in one piece from high quality seamless tubing at forging temperature.

EASY TO INSTALL

Welding and installation time is reduced by these Ladish Reducing Elbows which eliminate the need for handling and welding an additional fitting.

Ⓛ

TO MARK PROGRESS

SAVE WELDING COST • SAVE AN EXTRA FITTING
SAVE LOSS IN FLOW EFFICIENCY • SAVE SPACE

A single Ladish Seamless Reducing Elbow eliminates the 90° Elbow and Reducer formerly needed to change direction of flow and reduce pipe size simultaneously. This effects considerable installation economies . . . saving one weld and one fitting at each location . . . with the added advantage of accomplishing the reduction in less space. In addition, the smooth, gradual reduction in diameter of Ladish Reducing Elbows offers less resistance to flow.

Ladish Reducing Elbow Size Range—2" x 1" through 12" x 6" in Standard and Extra Strong Weights. Seamless through 6" x 3".

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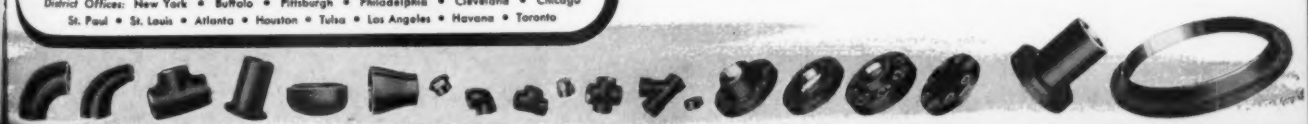

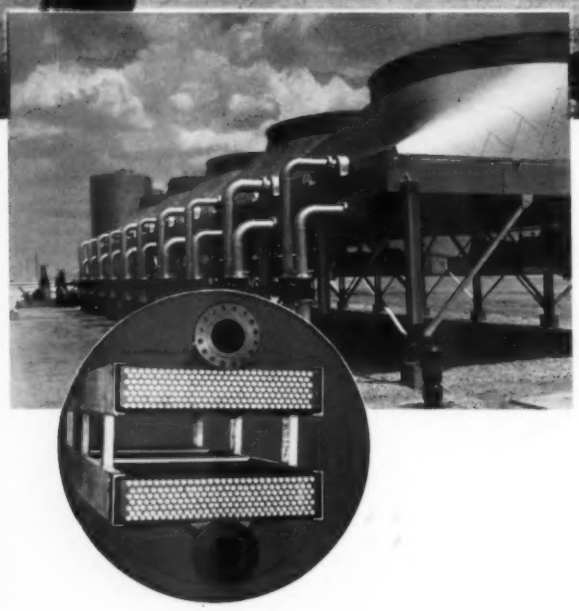

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ENGINEERING CORPORATION
FAIRVIEW STATION • HOUSTON, TEXAS

Active Refinery-Building Projects (Continued)

Company, location, and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Gas-recovery plant	.....	Building	Mid '51	The Fluor Corp., Ltd.
Esso Standard Oil Co., Bayway, N. J.:				
Desalting units, bbl. per day	100,000	Building	1951	The Fluor Corp., Ltd.
Excelsior Refineries, Ltd., Lloydminster, Alta., Canada:				
Vacuum unit, bbl. per day	1,500	Building	Early '51	Koch Engineering Co.
Famriss Oil & Refining Co., Hobbs, N. M.:				
Capacity increase, bbl. per day	600	Building	Early '51	The Refinery Engineering Co.
Farmers Union Central Exchange, Inc., Laurel, Mont.:				
Boiler plant	.....	Building	Early '51	.....
Cat. cracker, bbl. per day	5,000	Planned	1951	.....
Cat. poly unit	.....	Planned	1951	.....
Fletcher Oil Co., Wilmington, Calif.:				
Capacity increase, bbl. per day	5,000	Building	Early '51	Fletcher Oil Co.
General Petroleum Corp., Los Angeles, Calif.:				
Cat. poly unit, bbl. per day	500	Building	Early '51	The Fluor Corp., Ltd.
Gulf Oil Corp., Port Arthur, Tex.:				
Cat. cracker, bbl. per day	60,000	Building	.....	M. W. Kellogg Co.
Husky Oil & Refining, Ltd., Lloydminster, Alta., Canada:				
Desalting unit	.....	Building	Mid '51	Husky Oil & Refining Co.
Enlarge boiler plant	.....	Building	Mid '51	Husky Oil & Refining Co.
Additional tankage	.....	Building	Mid '51	Husky Oil & Refining Co.
Imperial Oil, Ltd., Edmonton, Alta., Canada:				
Cat. cracking unit, bbl. per day	9,000	Planned	Early '52	.....
Vacuum unit	.....	Planned	.....	.....
Inland Refining Co., Inc., Palestine, Tex.:				
Treating unit, bbl. per day	800	Contracted	.....	Grebe & Doremus
Johnson Oil Refining Co., Cleveland, Okla.:				
Platforming unit, bbl. per day	1,840	Building	Early '51	Procon, Inc.; Universal Oil Products Co.
Kendall Refining Co., Bradford, Pa.:				
Platforming unit, bbl. per day	1,500	Building	Early '51	Procon, Inc.; Universal Oil Products Co.
Kerr-McGee Oil Industries, Wynnewood, Okla.:				
Increase plant capacity, bbl. per day	10,000	Building	1951	.....
Lake Superior Refining Co., Superior, Wis.:				
Reerect refinery, bbl. per day	5,000	Building	1951	The Refinery Engineering Co.
Louisville Refining Co., Louisville:				
Cat. cracker, bbl. per day	3,000	Building	Late '51	Universal Oil Products Co.; Petroleum Piping Co.
Magnolia Petroleum Co., Beaumont, Tex.:				
Converted cat. cracker	.....	Building	Mid '51	.....
McColl-Frontenac Oil Co., Ltd., Edmonton, Alta., Canada:				
New refinery	.....	Building	Mid '51	Foster Wheeler Corp.; Burns & Dutton
Cat. cracker	.....	Building	Mid '51	.....
Distillation unit, bbl. per day	5,500	Building	Mid '51	.....
Delayed coker	.....	Building	Mid '51	.....
McMurrey Refining Co., Tyler, Tex.:				
Plant expansion	.....	Building	1951	The Refinery Engineering Co.
Mid-West Refineries, Inc., Alma, Mich.:				
Platforming unit, bbl. per day	1,500	Building	Mid '51	Universal Oil Products Co.; Procon, Inc.
National Cooperative Refinery Assn., McPherson, Kans.:				
Cat. cracker, bbl. per day	9,820	Building	.....	The Refinery Engineering Co.
Cat. poly unit, bbl. per day	880	Building	.....	The Refinery Engineering Co.
Increase crude unit, bbl. per day	23,200	Building	.....	The Refinery Engineering Co.
Revamp vacuum unit, bbl. per day	10,650	Building	.....	The Refinery Engineering Co.
Revamp thermal cracker, bbl. per day	2,940	Building	.....	The Refinery Engineering Co.
New Mexico Asphalt & Refining Co., Artesia, N. M.:				
Cat. cracker, bbl. per day	6,000	Building	1951	Southwestern Engineering Co.
Cat. poly unit, bbl. per day	300	Building	1951	Southwestern Engineering Co.
Onyx Refining Co., Abilene, Tex.:				
Revamp topping unit, bbl. per day	5,500	Building	Late '51	Onyx Refining Co.
Revamp cracking unit, bbl. per day	4,300	Building	Early '51	.....
Revamp stabilizer	.....	Building	Late '51	.....
Platforming unit, bbl. per day	900	Building	Late '51	Universal Oil Products Co.; Procon, Inc.
Pacific Refineries, Ltd., Hawaii:				
New refinery, bbl. per day	3,000	Building	1951	Fish Engineering Co.
Pan-Am Southern Corp., El Dorado, Ark.:				
Cat. cracker, bbl. per day	7,000	Building	Early '51	Foster Wheeler Corp.
Gas-recovery unit	.....	Building	Early '51	.....
Panhandle Production & Refining Co., Wichita Falls, Tex.:				
Increase crude-oil capacity, bbl. per day	8,000	Planned	.....	.....
Pana Refining Co., Pana, Ill.:				
Topping-unit heater, bbl. per day	6,000	Building	Early '51	.....
Peppers Refining Co., Oklahoma City:				
Cat. poly unit, bbl. per day	1,100	Building	Early '51	Koch Engineering Co.
Phillips Oil Co., Phillips, Tex.:				
Cat. cracker, bbl. per day	35,000	Building	Mid '51	C. F. Braun Co.
Premier Petroleum Co., Fort Worth:				
Platforming unit, bbl. per day	1,500	Building	Mid '51	Universal Oil Products Co.; Premier Petroleum Co.
Roosevelt Oil & Refining Co., Mount Pleasant, Mich.:				
Desulfurization unit, bbl. per day	3,000	Building	Mid '51	Roosevelt Oil & Refining Co.
Salt Lake Refining Co., Salt Lake City:				
Vacuum unit, bbl. per day	9,500	Building	.....	Bechtel Corp.
Shallow Water Refining Co., Garden City, Kans.:				
Poly unit, bbl. per day	100	Building	Early '51	Koch Engineering Co.
Shamrock Oil & Gas Corp., Sunray, Tex.:				
Cat. cracker, bbl. per day	5,900	Building	Early '51	Catalytic Construction Co.
Feed-preparation unit, bbl. per day	10,000	Building	Early '51	Shamrock Oil & Refining Corp.
Sulfur-recovery unit, tons daily	35	Building	Early '51	The Fluor Corp., Ltd.

Active Refinery-Building Projects (Continued)

Company, location, and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Shell Chemical Co., Deer Park, Tex.:				
Plant modernization	.....	Building	1951	The Fluor Corp., Ltd.
Shell Oil Co. of Canada, Ltd., Montreal East, Que., Canada:				
Offsite facilities	.....	Building	Early '51	The Fluor Corp., Ltd.
Shell Oil Co., Houston, Tex.:				
Platforming unit, bbl. per day	15,000	Building	1951	Universal Oil Products Co.; Procon, Inc.
Shell Oil Co., Wood River, Ill.:				
Platforming unit, bbl. per day	15,000	Building	1951	Universal Oil Products Co.; Procon, Inc.
Sinclair Refining Co., Houston:				
Desalting unit, bbl. per day	37,000	Building	Early '51	Howe-Baker
Sinclair Refining Co., East Chicago, Ind.:				
Vacuum unit, bbl. per day	20,000	Contracted	.....	Arthur G. McKee Co.
Socony-Vacuum Oil Co., Inc., Augusta, Kans.:				
Convert cat. cracker, bbl. per day	15,000	Building	Early '51	The Fluor Corp., Ltd.
B-B depropanizer, bbl. per day	4,000	Building	Early '51	The Fluor Corp., Ltd.
B-B treater, bbl. per day	3,000	Building	Early '51	The Fluor Corp., Ltd.
Socony-Vacuum Oil Co., Inc., Paulsboro, N. J.:				
Naphtha reformer, bbl. per day	12,000	Building	Mid '51	C. F. Braun Co.
Socony-Vacuum Oil Co., Inc., Buffalo:				
Convert cat. cracker, bbl. per day	15,000	Building	Early '51	Bechtel Corp.
Cat. poly unit, bbl. per day	900	Building	Early '51	Bechtel Corp.
Socony-Vacuum Oil Co., Inc., Brooklyn:				
Convert cat. cracker, bbl. per day	15,000	Building	Mid '51	Foster Wheeler Corp.
Cat. poly unit, bbl. per day	900	Building	Mid '51	Foster Wheeler Corp.
Socony-Vacuum Oil Co., Inc., Trenton, Mich.:				
Convert cat. cracker	.....	Building	Early '51	.....
Socony-Vacuum Oil Co., Inc., East Chicago, Ind.:				
Convert cat. cracker, bbl. per day	15,000	Building	Late '51	C. F. Braun Co.
Standard Oil Co. (Calif.), Richmond, Calif.:				
Vacuum unit, bbl. per day	50,000	Building	.....	M. W. Kellogg Co.
Standard Oil Co. (Ind.), Neodesha, Kans.:				
Increase plant capacity, bbl. per day	9,300	Building	.....	.....
Add cracking facilities	.....	Planned	.....	.....
Standard Oil Co. of North Dakota, Grand Forks, N. D.:				
New refinery, bbl. per day	2,000	Planned	.....	.....
Standard Oil Co. (Ohio), Cleveland:				
Cat. cracker, bbl. per day	18,000	Building	Early '51	Bechtel Corp.
Crude unit, bbl. per day	45,000	Contracted	Late '51	Arthur G. McKee Co.
Sunray Oil Corp., Santa Monica, Calif.:				
Rebuild refinery	.....	Building	.....	.....
Taylor Refining Co. and Mayfair Minerals, Inc., Port Isabel, Tex.:				
Platforming unit, bbl. per day	4,000	Building	Mid '51	Universal Oil Products Co.
Crude unit, bbl. per day	10,000	Building	Early '51	Taylor Refining Co.
Taylor Refining Co., Corpus Christi, Tex.:				
Cat. cracker, bbl. per day	8,000	Building	Mid '51	The Lummus Co.
Cat. poly unit, bbl. per day	400	Building	Mid '51	The Lummus Co.
Crude unit, bbl. per day	20,000	Building	Mid '51	Taylor Refining Co.
Gas-recovery unit	.....	Building	Mid '51	The Lummus Co.
The Texas Co., Lawrenceville, Ill.:				
Increase crude capacity, bbl. per day	20,000	Building	Mid '51	Foster Wheeler Corp.; M. W. Kellogg Co.
Cat. cracker	.....	Building	Mid '51	.....
Cat. poly unit	.....	Building	Mid '51	.....
Atmospheric unit	.....	Building	Mid '51	.....
Vacuum unit	.....	Building	Mid '51	.....
Union Oil Co., Edmonds, Wash.:				
New asphalt refinery	.....	Building	1951	Bechtel Corp.
Utah Oil Refining Co., Salt Lake City:				
Increase boiler plant, lb. per hour	65,000	Contracted	Late '51	Stearns-Roger Mfg. Co.
Western Oil & Fuel Co., Superior, Wis.:				
New refinery	.....	Planned	.....	.....
Wilshire Oil Co., Inc., Norwalk, Calif.:				
Poly unit, bbl. per day	600	Building	Early '51	Universal Oil Products Co.
Cat. cracker, bbl. per day	5,000	Building	Early '51	Universal Oil Products Co.
Vacuum unit, bbl. per day	15,000	Building	Early '51	Universal Oil Products Co.
Convert thermal cracker, bbl. per day	10,000	Contracted	Early '51	Universal Oil Products Co.

Refinery Projects Completed in 1950

Company, location, and type of project—	Capacity rating
American Bitumuls Co., Mobile, Ala.:	
Rebuild refinery, bbl. per day	6,000
Arex Co., Bloomfield, N. M.:	
Topping unit, bbl. per day	200
Bell Oil & Gas Co., Ardmore, Okla.:	
Naphtha unit, bbl. per day	1,000
British American Oil Co., Ltd., Clarkson, Ont., Canada:	
Deasphalting unit, bbl. per day	700
California Refining Co., Perth Amboy, N. J.:	
Asphalt plant, bbl. per day	5,000
Canadian Oil Cos., Ltd., Petrolia, Ont., Canada:	
Caustic scrubber	2,000
Champlin Refining Co., Enid, Okla.:	
Lube-oil vacuum unit, bbl. per day	600
Cities Service Oil Co., Cicero, Ill.:	
Lube-oil compound plant, bbl. per day	1,200
Continental Oil Co., Ponca City, Okla.:	
Revamp alkylation and hydroforming units, bbl. per day	4,000
Cooperative Refinery Association, Coffeyville, Kans.:	
Dewaxing unit, bbl. per day	2,500
Deep Rock Oil Corp., Cushing, Okla.:	
Crude unit, bbl. per day	5,000
Cat. cracker, bbl. per day	5,000
Frontier Refining Co., Cheyenne, Wyo.:	
Coking unit, bbl. per day	2,500
Gas & Oil Refineries, Ltd., Hartell, Alta., Canada:	
Increase plant capacity, bbl. per day	1,500
General Petroleum Corp., Torrance, Calif.:	
Expand coking unit, bbl. per day	7,500
Expand cat. cracker, bbl. per day	4,000
Imperial Oil, Ltd., Sarnia, Ont., Canada:	
Propane plant, bbl. per day	650
Indiana Farm Bureau Co-op Assn., Mount Vernon, Ind.:	
Cat. cracker, bbl. per day	4,000
Revamp poly unit, bbl. per day	300
Vacuum unit, bbl. per day	3,500
Lion Oil Co., El Dorado, Ark.:	
Naphtha rerun unit, bbl. per day	1,200

2590 *extra barrels every month for 6½ years*

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These two offsets, drilled on a California lease in 1940 by a major oil company, were similar in every detail. They were drilled to the same reservoir within a few hundred yards of each other. Their logs and cores showed a close relationship from top to bottom. Only on one known factor did they differ: Well A was completed with a water base mud while Well B was completed with an oil base mud.*

On October 10, 1940, the first Specific Productivity Index was .00611. On April 11, 1947, 6½ years later (the date of the last reading), the SPI was .00132. It had dropped to 21% of its original pressure. Total production during this 78 months period was 256,000 bbls., an average of 3285 bbls. a month.

The first SPI taken on September 24, 1940, was .00789. On August 19, 1947, the SPI was .00294. In 83 months it had declined to 37% of its original. Total production was 487,500 bbls., a monthly average of 5875 bbls., an increase of 2590 bbls. every month over Well A.

NOTE THE SIMILARITY OF THESE OFFSET WELLS

	WELL A	WELL B
Sand Thickness	180 ft.	190 ft.
Average Sand Permeability	115 md.	105 md.
Static Pressure	3135 psi	3100 psi
Millidarcy feet of sand	20,700	19,950

* The oil base mud used in this well contained air-blown asphalt and was mixed with a refined type oil. After several improvements this mud became known as Black Magic.

BLACK MAGIC ASSURES MAXIMUM RECOVERY

These wells were produced under proration conditions and represent normal depletion practices. In spite of the fact that Well A flowed an average of 3285 bbls. monthly, it still was producing far below its ultimate potential due to Jamin action (water blocking), the result of drilling into the production zone with water base muds. The difference in the size of Wells A and B proves beyond question that water blocking damages a well permanently, hastens the day it will be shut down.

Black Magic with a filtrate loss of zero cannot possibly mud off or water block the oil sands. Black Magic deposits a thin mud cake that readily disintegrates when displaced by crude. It helps instead of hinders production and on occasion has made commercial producers out of dry holes. For full information write for paper "What Happens Tomorrow?"

OBI PRODUCTS also include WHITE MAGIC oil emulsion mud; OB GEL to increase Black Magic viscosity; OB GEN to regenerate water-contaminated Black Magic; OB WATE weighting material; OB HEVYWATE, barites; CHEMICAL "V" regenerates crude contaminated Black Magic; CHEMICAL "X" reduces its viscosity; OB MIX FIX corrects a faulty mixing oil; OB ZERO lowers fluid loss; OB MUD GUNS; OIL BASE HAND CLEANER. Write for a free copy of the Oil Base, Inc. Handbook containing useful information on

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Branch Offices: Bakersfield, Long Beach, Ventura, Houston, Fort Worth, Corpus Christi, Oklahoma City, Midland, Warland

Export Offices: Elmer R. Smith, Caracas, Venezuela

Refinery Projects Completed in 1950 (Continued)

Company, location, and type of project—	Capacity rating
Asphalt unit, bbl. per day	500
Magnolia Petroleum Co., Beaumont, Tex.:	
Convert cat. crackers	
Expand gas plant	
McBride Refining Co., La Blanca, Tex.:	
Cat. reformer, bbl. per day	1,200
McMillan Petroleum Corp., Long Beach, Calif.:	
Revamp topping unit, bbl. per day	1,000
Mid-Continent Petroleum Corp., West Tulsa, Okla.:	
Alkylation unit, bbl. per day	850
Mid-West Refineries, Inc., Alma, Mich.:	
Topping unit, bbl. per day	5,000
Onyx Refining Co., Abilene, Tex.:	
Revamp topping and cracking units, bbl. per day	4,300
Pan-Am Southern Corp., El Dorado, Ark.:	
Coking unit, bbl. per day	9,300
Revamp alkylation unit, bbl. per day	1,000
Panhandle Production & Refining Co., Wichita Falls, Tex.:	
Cat. cracker, bbl. per day	1,500
Revamp poly plant, bbl. per day	150
Gasoline treater, bbl. per day	1,000
Pennzoil Co., Oil City, Pa.:	
Deresining plant, bbl. per day	1,340
Petco Corp., Blue Island, Ill.:	
Enlarge topping unit, bbl. per day	20,000
Revamp thermal cracker, bbl. per day	5,000
Cat. cracker, bbl. per day	7,500
Petco Corp., Marrero, La.:	
Enlarge topping unit, bbl. per day	6,000
Revamp thermal cracker, bbl. per day	2,000
Poly unit, bbl. per day	200
Phillips Oil Co., Kansas City, Kans.:	
Cat. cracker, bbl. per day	24,000
Phillips Oil Co., Okmulgee, Okla.:	
Cat. poly unit	
Republic Oil Refining Co., Texas City, Tex.:	
Revamp poly unit, bbl. per day	2,800
Salt Lake Refining Co., Salt Lake City:	
Cat. cracker, bbl. per day	10,000
Vacuum unit, bbl. per day	9,500
Shallow Water Refining Co., Garden City, Kans.:	
Reforming unit, bbl. per day	1,250
Shamrock Oil & Gas Corp., Sunray, Tex.:	
Cycloversion unit, bbl. per day	2,000
Poly unit, bbl. per day	350
Shell Oil Co. of Canada, Ltd., Montreal East, Que., Canada:	
Solutizer unit, bbl. per day	7,000
Revamp topping units, bbl. per day	30,000
Cat. cracker, bbl. per day	10,000
Cat. poly unit, bbl. per day	1,100
Sinclair Refining Co., East Chicago, Ind.:	
Desalting units, bbl. per day	35,000
Sinclair Refining Co., Marcus Hook, Pa.:	
Deethanizer, bbl. per day	950
Sioux Oil Co., Newcastle, Wyo.:	
Treater and cat. poly units, bbl. per day	1,200
Skelly Oil Co., El Dorado, Kans.:	
Cat. cracker, bbl. per day	
Crude unit, bbl. per day	
Socony-Vacuum Oil Co., Inc., Casper, Wyo.:	
Revise topping unit, bbl. per day	5,900
Socony-Vacuum Oil Co., Inc., Paulsboro, N. J.:	
Light-oil treater, bbl. per day	28,000
Dewaxing unit, bbl. per day	2,050
Deasphalting unit, bbl. per day	5,950
Socony-Vacuum Oil Co., Inc., East St. Louis, Ill.:	
Thermal cracker, bbl. per day	13,200
Coking unit, bbl. per day	8,000
Stancal Asphalt & Bitumuls Co., Richmond Beach, Calif.:	
Asphalt refinery, bbl. per day	3,500
Standard Oil Co. (Ohio), Lima, Ohio:	
Coking unit, bbl. per day	15,000
Vacuum unit, bbl. per day	9,000
MEK unit, bbl. per day	2,500
Furfural unit, bbl. per day	3,300
Mercaptan extractor, bbl. per day	10,500
L.P.G. unit, bbl. per day	562
P.D. unit, bbl. per day	800
Clay contact unit, bbl. per day	1,800
Sun Oil Co., Toledo:	
Crude unit, bbl. per day	30,000
Cat. cracker, bbl. per day	30,000
Tide Water Associated Oil Co., Drumright, Okla.:	
Cat. cracker, bbl. per day	6,750
Union Oil Co. of California, Oleum, Calif.:	
Revisions to crude facilities	
Utah Oil Refining Co., Salt Lake City:	
Asphalt blending plant, bbl. per day	1,800

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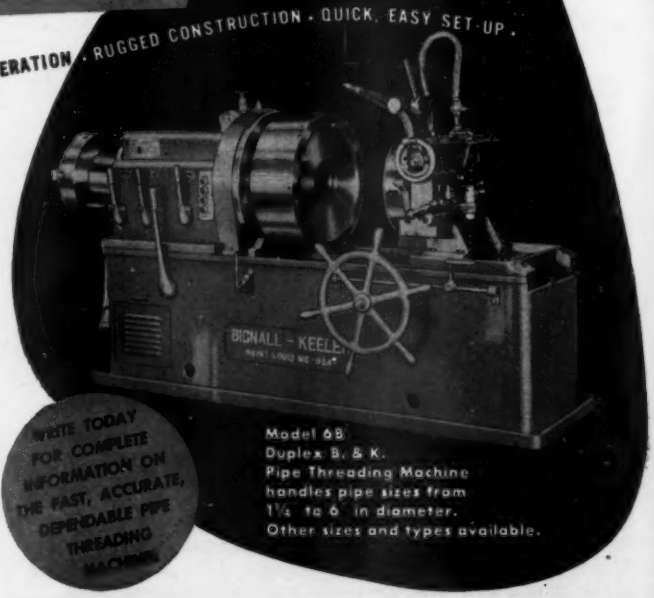

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REVIEW and FORECAST

New Field Processing Plants Exceed Billion-Foot Daily Capacity

by R. B. Tuttle

NEW natural-gas field-processing plants now building and scheduled for completion this year, include carbon black, gasoline and L.P.G., and petrochemical installations. All but one of these projects are located in the United States. The plant outside of the United States is being installed in the Jumping Pound area of Alberta, Canada. One of the United States plant installations, a 15,000,000-cu.-ft.-per-day absorption unit, not yet under way, is expected to be completed before the end of 1951. Another plant installation just being started is scheduled for completion in 1952. This plant is a natural gasoline-pressure maintenance unit rated at 90,000,000 cu. ft. per day input.

Combined capacity of the new natural-gasoline and L.P.G. producing plants now being built or scheduled for starting of construction this year is approximately 975,000,000 cu. ft. of natural gas daily. This group is composed of nine natural gasoline plant units including one in Canada and one cycling plant and one natural gasoline-pressure maintenance installation in the United States. Plans are in motion to construct still another natural-gasoline plant in the Southwest. This plant is being designed to extract 12,000 gal. of liquid daily.

Five major petrochemical plant projects are under way. With exception of one unit, these plants are being erected in the southwestern area of the United States. A number of new projects involving various types of field processing plants, now in preliminary stages of development, are expected to receive final authorization soon. These pending projects involve new plants as well as revision and enlargement of existing installations.

Capacity of the major projects completed last year is approximately 950,000,000 cu. ft. per day of natural gas on an input basis. These projects were new plants, totaling 20 separate installations. Geographically these installations were 20 per cent in Texas, 10 per cent each for California and Oklahoma, and 5 per cent in both Louisiana and Kansas. On a capacity basis approximately 30 per cent of the total is accounted for by the new plants installed in Texas.

Natural-Gas Processing-Plant Building Projects

Company, location, and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Abercrombie, J. S., Co., Old Ocean field, Texas: Dehydration plant, cu. ft. per day	160,000,000	Planned	Late '51	
Arkansas Fuel Oil Co., Carthage, Tex.: Increase gasoline plant capacity, cu. ft. per day	50,000,000	Building	Early '51	Arkansas Fuel Oil Co.
Arkansas Fuel Oil Co., Wascom, Tex.: Increase plant pressure and add dehydration, cu. ft. per day	60,000,000	Building	Mid '51	Arkansas Fuel Oil Co.
Arkansas Fuel Oil Co., Bistineau, La.: Add dehydration facilities, cu. ft. per day	60,000,000	Building	Early '51	Arkansas Fuel Oil Co.
Carthage Hydrocol, Inc., Brownsville, Tex.: Petrochemical plant		Building	Mid '51	
Commercial Solvents Corp., Sterlington, La.: Ammonia plant		Building		
Continental Oil Black Co., Lake Charles, La.: Carbon black plant		Building		
Continental Oil Co., Ventura, Calif.: Revise plant, cu. ft. per day	23,000,000	Building	Early '51	Refinery Maintenance Co.
Crosbie, J. E., Inc., Oklahoma: Natural-gasoline plant, gal. per day	12,000	Planned		
Dow Chemical Co., Freeport, Tex.: Plant enlargement		Building		
E. I. du Pont de Nemours & Co., Victoria, Tex.: Petrochemical plant		Building		
Ethyl Corp., Houston: Chemical plant		Building		
General Crude Oil Co., Esperson Dome, Texas: Pressure-maintenance plant, hp.	330	Building	Early '51	O. L. Olsen Co.
Grimes, Otha H., Carter County, Oklahoma: Gasoline plant, cu. ft. per day	4,500,000	Building	Early '51	L. S. Gregory Co.
J. M. Huber Corp., Baytown, Tex.: Carbon-black plant, lb. per year	30,000,000	Building		Stearns-Roger Mfg. Co.
Humble Oil & Refining Co., Avery Island field, Louisiana: Compressor plant, cu. ft. per day	4,400,000	Building	Early '51	Stearns-Roger Mfg. Co.
Jefferson Lake Sulphur Co., Long Point, Tex.: Sulfur plant, tons per year	250,000	Building		
Lion Oil Co., Scurry County, Texas: Gasoline plant, cu. ft. per day	12,510,000	Building	1951	Hudson Engineering Corp.
Lion Oil Co., Magnolia, Ark.: Sulfur-recovery unit, tons per day	10	Building	Mid '51	R. A. Graff
Lone Star Gas Co., Bronte, Tex.: Desulfurization unit, cu. ft. per day	10,000,000	Building	Early '51	R. A. Graff
Matheson Chemical Co., Houston: Fertilizer plant		Building		

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Natural-Gas Processing-Plant Building Projects (Continued)

Company, location, and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Matheson Hydrocarbon Chemical Co., Brandenburg, Ky.: Petrochemical plant	.....	Building	Late '51	E. B. Badger & Sons Co.; Stone & Webster Const. Co.
McKamie Gas Cleaning Co., Magnolia, Ark.: Enlarge gasoline plant, cu. ft. per day	50,000,000	Building	Mid '51	Jones & Laughlin Supply Co.
Monsanto Chemical Co., Texas City, Tex.: Petrochemical-plant expansion	.....	Building	.....	.....
Ohio Fuel Gas Co., Medina, Ohio: Increase absorber capacity, gal. per day	1,000	Planned	.....	.....
Ohio Oil Co., Sidney, Neb.: Gasoline plant, cu. ft. per day	12,500,000	Building	Early '51	Stearns-Roger Mfg. Co.
Ohio Oil Co., North Markham, Tex.: Gasoline-press.-maint. plant, cu. ft. per day	90,000,000	Contracted	Early '52	Hudson Engineering Co.
Pan American Production Co., Willamar field, Texas: Pressure-maintenance plant, hp.	8,100	Contracted	Early '51	.....
Pecos Petroleum Co., Orla, Tex.: Enlarge gasoline plant, gal. per day	30,000	Building	.....	.....
Phillips Chemical Co., Phillips, Tex.: Carbon-black plant, tons per year	80,000	Authorized	.....	.....
Pontiac Refining Co. and The Chicago Corp., Corpus Christi, Tex.: Petrochemical plant	.....	Authorized	.....	.....
Richfield Oil Corp., Kern County, California: Gas-injection unit, cu. ft. per day	20,000,000	Planned	1951	.....
Shell Oil Co., Elk City, Okla.: Cycling plant, cu. ft. per day	100,000,000	Building	Early '51	Refinery Maintenance Co., Inc.
Shell Oil Co. of Canada, Ltd., Jumping Pound, Alta., Canada: Gasoline plant cu. ft. per day	30,000,000	Building	Early '51	The Fluor Corp.
Skelly Oil Co., Skellytown, Tex.: Revamp. plant, cu. ft. per day	30,000,000	Building	Early '51	J. E. Carlson
Skelly Oil Co., Eunice, N. M.: Revise plant, cu. ft. per day	30,000,000	Planned	Early '51	.....
Skelly Oil Co., Velma, Okla.: Enlarge plant, cu. ft. per day	57,000,000	Planned	Early '51	.....
Superior Oil Co., Colorado County, Texas: Gasoline plant, cu. ft. per day	60,000,000	Building	Mid '51	Brown & Root Const. Co.
Sunray Oil Corp., Snyder, Tex.: Gasoline plant, cu. ft. per day	50,000,000	Building	Mid '51	The Fluor Corp.
Taylor Refining Co. and Mayfair Minerals, Inc., McAllen, Tex.: Cycling-plant expansion, cu. ft. per day	70,000,000	Building	Late '51	Gasoline Plant Const. Co.
Tennessee Gas Transmission Co., Greensburg, Ky.: Gasoline plant, cu. ft. per day	600,000,000	Building	Mid '51	.....
Texas Co., The, Scurry County, Texas: Gasoline plant, cu. ft. per day	15,000,000	Planned	Late '51	.....
Universal Petroleum Co., Beaumont, Tex.: Gas booster plant, cu. ft. per day	5,000,000	Building	Early '51	.....
Western Natural Gas Co., Live Oak County, Texas: Separation plants, cu. ft. per day	30,000,000	Building	Early '51	.....

Completed Natural-Gas Processing-Plant Projects

Company, location, and type of project—	Capacity rating
American Republics Corp., Tyler County, Texas: Add absorption equipment, cu. ft. per day	10,000,000
Arkansas Fuel Oil Co., Wascom, Tex.: Increase capacity, cu. ft. per day	115,000,000
Arkansas Fuel Oil Co., Greggton, Tex.: Increase propane recovery, cu. ft. per day	10,000,000
Arkansas Fuel Oil Co., Ruston, La.: Gasoline plant, cu. ft. per day	50,000,000
Cities Service Oil Co., Wise County, Texas: Gasoline plant, cu. ft. per day	12,000,000
Coline Gasoline Corp., Ventura County, California: Gasoline plant, cu. ft. per day	15,000,000
Continental Oil Co., Crockett County, Texas: Gasoline plant, cu. ft. per day	9,300,000
Continental Oil Co., Starr County, Texas: Extend gasoline plant, cu. ft. per day	20,000,000
Del Rey Petroleum Co., Chesterville, Tex.: Gasoline plant, cu. ft. per day	60,000,000
Del Valle Gasoline Co., Los Angeles County, California: Add depropanizer, gal. per day	15,000
Francitas Gas Co., Blessing, Tex.: Add absorption equipment, cu. ft. per day	7,000,000
Humble Oil & Refining Co., Jourdantown field, Texas: Gasoline plant, cu. ft. per day	26,000,000
Magnolia Petroleum Co., Seeligson field, Texas: Natural gasoline-cycling plant, cu. ft. per day	206,000,000
Magnolia Petroleum Co., Grant County, Kansas: Gasoline plant, cu. ft. per day	100,000,000
Magnolia Petroleum Co., Stephens County, Oklahoma: Gasoline plant, cu. ft. per day	30,000,000
Magnolia Petroleum Co., Grady County, Oklahoma: Natural gasoline-cycling plant, cu. ft. per day	30,000,000
Northern Natural Gas Co., Sublette, Kans.: Plant expansion, cu. ft. per day	265,000,000
Pure Oil Co., The, Worland, Wyo.: Gasoline plant	.....
Sulfur-extraction unit	.....
Richfield Oil Corp., Santa Barbara County, California: Gasoline plant, cu. ft. per day	30,000,000
Shell Oil Co., Provident City, Tex.: Gasoline plant, cu. ft. per day	60,000,000
Standard Oil Co. of Texas, Snyder, Tex.: Gasoline plant, cu. ft. per day	20,000,000
Stanolind Oil & Gas Co., Hockley County, Texas: Gasoline plant, cu. ft. per day	40,000,000
Stanolind Oil & Gas Co., Andrews County, Texas: Gasoline plant, cu. ft. per day	38,500,000
Stanolind Oil & Gas Co., Ector County, Texas: Gasoline plant, cu. ft. per day	50,000,000
Stanolind Oil & Gas Co., Brownsville, Tex.: Petrochemical refining plant, lb. per year	100,000,000
Sun Oil Co., Silver, Tex.: Increase pressure-maintenance plant, cu. ft. per day	16,500,000
Sunray Oil Co., Heyser, Tex.: Gas-dehydration plant, cu. ft. per day	22,000,000
Taylor Refining Co. and Mayfair Minerals, Inc., McAllen, Tex.: Natural gasoline-cycling plant, cu. ft. per day	75,000,000
Tennessee Gas Transmission Co., San Salvador, Tex.: Gas-dehydration plant, cu. ft. per day	44,000,000
Texas Natural Gasoline Corp. and Santa Rosa Gas Products Co., Grand Falls, Tex.: Gasoline plant, cu. ft. per day	30,000,000
Texas Natural Gasoline Corp. and Upton Gas Products Co., Rankin, Tex.: Gasoline plant, cu. ft. per day	55,000,000
Tide Water Associated Oil Co., Anderson County, Texas: Alterations to cycling plant, cu. ft. per day	25,000,000
United Gas Pipe Line Co., Karnes City, Tex.: Gasoline plant, cu. ft. per day	10,000,000
Western Natural Gas Co., Live Oak County, Texas: Multistage separation plants, cu. ft. per day	15,000,000
Western Natural Gas Co., Victoria County, Texas: Multistage separation plant, cu. ft. per day	15,000,000
Western Natural Gas Co., Aransas County, Texas: Multistage separation plant, cu. ft. per day	30,000,000
Wyoming Pipe Line Co., Casper, Wyo.: Gas dehydration plant, cu. ft. per day	20,000,000

REVIEW and FORECAST

Production and Proved Remaining Reserves — By Fields

On this and the following three pages are detailed proved remaining reserves of crude oil and condensate of the country's larger fields.

PRODUCTION AND RESERVES—TEXAS

(In thousands of barrels)

SOUTHWEST TEXAS

	1950 production	January 1, 1951 Cumulative	January 1, 1951 Estimated reserves	No. of wells
RAILROAD DIST. 1:				
Charlotte and West	2,240	7,026	14,974	303
Darst Creek	2,533	75,819	26,181	325
Luling and Branyon	1,600	94,011	15,989	582
RAILROAD DIST. 4:				
Agua Dulce-Stratton	7,925	81,308	143,692	478
Borregas	835	2,713	97,287	57
Brayton	1,104	6,733	28,267	71
Colorado	960	10,749	10,251	217
Conoco-Driscoll	822	12,660	12,340	60
Flour Bluff and East	932	16,549	11,451	98
Fulton Beach	1,210	2,406	12,594	78
Garcia	1,053	7,770	14,230	115
Govt. Wells, N. and S.	1,648	66,117	18,883	561
Hoffman	1,694	20,212	19,788	439
Kelsey	2,291	15,066	44,934	244
La Gloria	5,748	32,967	117,033	266
Loma Novia	926	35,794	14,206	373
London Gin	968	1,022	13,978	68
Midway	1,333	13,046	11,954	98
Plymouth and East	3,938	52,842	37,158	178
Richard King	747	10,019	9,981	84
Rincon	2,395	22,391	27,609	235
Saxet	1,592	69,820	20,180	134
Seeligson	9,372	76,445	423,555	811
Sejita	1,068	3,701	6,299	92
Sinton	1,735	2,966	17,034	370
Sun and North	1,167	12,312	17,688	131
Taft	1,076	12,645	9,355	113
Tijerina-Canales-Blucher	3,264	18,480	101,520	187
White Point, East	2,670	42,594	37,406	271
Willamar	2,079	22,335	42,665	235

TEXAS GULF COAST

RAILROAD DIST. 2:				
Bloomington	1,781	5,896	16,104	144
Bonnie View	835	5,321	9,679	79
Burnell-Tulsita	3,442	8,510	31,490	116
Falls City	1,096	6,774	23,226	70
Ganado and Deep and West	1,026	10,670	19,330	108
Greta and Deep	2,907	54,941	45,059	203
Heyser	1,280	35,182	14,818	182
La Rosa and North	729	12,829	12,171	66
La Ward, North	659	7,436	7,564	100
Lolita	1,495	19,915	17,085	233
McFaddin	1,475	17,699	17,301	108
Placedo and East	1,964	30,810	24,190	227
Refugio area	2,397	62,177	42,823	240
Roche	772	2,799	9,201	47
Slick-Wilcox	908	9,292	15,708	51
Tom O'Connor	11,565	158,016	301,984	655
West Ranch	5,463	64,834	135,166	602
RAILROAD DIST. 3:				
Amelia	708	18,373	11,627	82
Anahuac	6,785	101,036	163,964	338
Barbers Hill	2,108	91,328	28,672	129
Bay City and North	1,504	19,588	15,412	82
Boling	1,019	12,753	12,247	117
Cedar Point	897	6,897	11,103	40
Chocolate Bayou	3,980	10,584	22,416	89
Clear Lake	677	11,436	9,564	45
Conroe and West	11,991	293,201	306,799	857
Dyersdale	1,539	8,603	11,397	98
Esperson Dome and S.	1,530	16,979	13,021	100
Fairbanks	1,601	29,255	20,745	265
Fannett	1,411	20,691	14,309	70
Fig Ridge	777	13,689	6,311	76

TEXAS GULF COAST (Continued)

	1950 production	January 1, 1951 Cumulative	January 1, 1951 Estimated reserves	No. of wells
Gillock	3,171	20,822	39,178	175
Goose Creek	2,449	86,180	38,820	245
Hastings	13,243	196,457	303,543	654
High Island	2,380	29,132	20,868	108
Hull	3,562	110,364	39,636	273
Humble	1,205	135,199	24,801	255
Hutchins-Kubela	625	4,760	5,240	67
Katy and North	5,359	29,284	90,716	66
Lake Creek	964	9,648	15,352	3
Livingston	1,375	17,981	17,019	144
Lovell Lake and North	1,127	16,654	15,346	103
Magnet-Withers	1,847	33,629	26,371	228
Manvel	2,014	44,180	35,820	159
Markham and North	1,123	20,951	9,049	95
Mercy and West	510	7,035	7,965	34
North Withers	1,847	25,664	19,336	155
Old Ocean	5,305	59,406	140,594	150
Oyster Bayou	2,384	20,265	54,735	36
Pierce Junction	1,459	41,510	18,490	98
Port Neches and North and West	1,344	14,267	15,733	102
Raccoon Bend-Cockfield	1,659	46,662	28,338	155
Red Fish Reef and East	721	6,313	8,687	37
Saratoga	692	33,786	8,214	255
Segno and Deep	747	16,969	13,031	96
Sheridan	1,864	8,493	26,507	1
Silsbee and West	2,110	11,884	18,116	68
Sour Lake	1,925	88,159	21,841	293
South Houston	1,203	20,068	19,932	69
South Liberty	2,093	21,646	28,354	127
Spindletop	544	129,952	5,048	159
Stowell	2,281	31,993	43,007	87
Sugarland	1,057	46,091	23,909	45
Sugar Valley	2,063	8,249	26,751	121
Thompson and North and South	10,198	152,917	172,083	353
Tomball	2,219	48,726	36,274	400
Village Mills and East	2,381	3,009	26,991	90
Webster	11,235	150,017	299,983	208
West Columbia	2,613	111,102	28,898	155

EAST TEXAS

RAILROAD DIST. 5:				
Sherman	1,151	2,688	22,312	85
Sulfur Bluff	713	18,707	8,293	64
Van and Shallow	7,345	211,119	188,881	579
RAILROAD DIST. 6:				
Carthage	858	11,891	10,109	47
Chapel Hill	1,295	4,866	10,134	61
Coke	825	6,354	8,646	86
East Texas field	97,609	2,777,412	2,222,588	21,925
Hawkins	10,440	118,284	381,716	622
Merigale-Paul	1,054	4,822	10,178	166
New Hope	1,799	7,229	35,771	69
Quitman	2,730	19,512	30,488	147
Rodessa	847	60,916	9,084	241
Talco	5,615	122,437	57,563	727
Cayuga	2,005	45,180	19,820	189
Long Lake and East	1,689	27,808	17,192	163
Mexia	373	102,019	5,981	124
Opelika	1,708	14,212	15,788	52
Powell	351	119,219	5,781	127

NORTH TEXAS

RAILROAD DIST. 7-B:				
Reddin	782	5,143	7,857	141
Round Top	2,124	3,690	18,310	139
Wimberly	1,128	9,316	10,684	196

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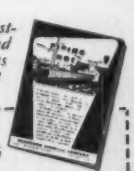

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NORTH TEXAS (Continued)

	1950 production	January 1, 1951 Cumulative	January 1, 1951 Estimated reserves	January 1, 1951 No. of wells
RAILROAD DIST. 9:				
Burkburnett	1,593	168,049	16,951	1,718
Chico, West	828	2,041	7,959	57
Electra	2,905	164,199	35,801	2,765
Hildreth	1,162	14,397	15,603	159
Hull-Silk-Sikes	2,850	40,712	34,288	441
Joy	1,725	7,841	8,159	233
K.M.A.	3,385	131,106	48,894	1,403
Nocona	1,080	38,972	16,028	962
Sivells Bend	1,090	6,281	8,719	61
Walnut Bend	2,061	25,456	19,544	214

WEST TEXAS

RAILROAD DIST. 7-C:				
Barnhart	1,256	10,290	34,710	76
Benedum	2,773	4,261	45,739	66
Big Lake	994	110,939	14,061	183
Jameson	1,906	4,582	35,418	87
McCamey	3,632	81,077	43,923	896
Pegasus	1,295	1,555	148,445	25
Susan Peak	1,107	1,402	28,598	64
Todd	2,901	20,071	59,929	97
Vaughn	914	1,060	13,940	142
World	1,434	14,965	15,035	154
RAILROAD DIST. 8:				
Abell	1,806	9,240	20,760	131
Adair	998	2,931	15,069	117
Andector	4,956	13,214	61,786	108
Anton-Irish	2,486	7,956	22,044	138
Bedford	708	3,572	16,428	14
Block 31	2,505	8,605	36,395	77
Cedar Lake	1,351	7,278	12,722	117
Cogdell	3,051	3,053	96,947	171
Cowden, North	6,223	87,797	112,203	749
Cowden, South	3,023	15,869	34,131	321
Diamond M	6,904	7,582	142,418	266
Dollarhide	6,432	15,277	74,723	241
Embar	1,005	10,784	14,216	35
Foster	5,447	63,776	61,224	650
Fuhrman-Mascho	1,369	13,944	16,056	280
Fullerton	11,707	72,393	252,607	700
Garza	3,196	11,353	28,647	382
Goldsmith	11,998	113,221	236,779	1,402
Good	1,405	1,608	18,392	33
Hendrick	1,252	216,026	23,974	202
Howard-Glasscock	5,744	145,156	64,844	999
Iatan-E. Howard and N.	1,285	27,307	12,693	473
Jordan	3,302	23,684	36,316	314
Kelly-Snyder	25,205	25,625	574,375	927
Kermit	834	37,356	12,644	521
Keystone	11,246	87,668	262,332	868
Levelland	10,923	29,932	120,068	1,570
McElroy	7,507	201,189	128,811	898
Mabee	862	6,296	13,704	94
Martin	2,643	8,893	41,107	79
Means	1,404	17,546	22,454	226
Midland Farms	2,876	7,404	14,596	127
Monahans	575	4,732	25,268	50
Pecos Valley	716	5,592	9,408	294
Penwell	764	31,416	13,584	188
Reinecke	1,237	1,237	23,763	40
Salt Creek	581	581	27,419	34
Sand Hills	3,870	34,037	50,963	421
Seminole-San Angelo and West	5,846	59,203	120,797	380
Shafter Lake	2,808	8,027	41,973	98
Sharon Ridge	3,983	10,488	69,512	802
Slaughter	12,866	176,474	323,526	2,250
Snyder and North	729	7,193	142,807	135
Spraberry and Deep	534	844	19,156	39
Sweetie Peck	528	528	59,472	13
Three Bar	1,425	3,436	16,564	50
Toborg	2,218	14,984	25,016	838
Tunstill	962	2,231	12,769	100
T.X.L.	13,532	76,742	173,258	390
University-Waddell	1,007	2,696	32,304	18
Vealmoor and E. and N.	1,348	1,910	18,090	70
Waddell	1,073	13,345	11,655	173
Ward, N.-Estes and S.	2,928	70,152	49,848	1,353
Wasson	18,546	216,076	433,924	1,650
Welch	1,095	6,062	13,938	173
Wheeler	2,639	14,495	35,505	95
Yarbrough and Allen	1,124	2,182	17,818	30
Yates and Smith	10,835	372,644	427,356	617

TEXAS PANHANDLE

RAILROAD DIST. 10:				
Armstrong	3,493	13,851	22,149	524
Badger	2,934	70,111	34,889	1,125
Bentley-Shamrock, East	1,216	33,007	8,993	404
Borger and Pantex	3,277	112,467	32,533	501
Bowers	1,104	39,564	10,436	222
Chapman	993	12,655	7,345	129

TEXAS PANHANDLE (Continued)

	1950 production	January 1, 1951 Cumulative	January 1, 1951 Estimated reserves	January 1, 1951 No. of wells
Cooper-Moore	1,041	33,796	10,204	402
Dial	3,660	52,714	22,286	1,162
Finley	4,274	90,169	39,831	553
Lefors	1,689	33,340	8,660	231
Morse	800	14,511	7,489	240
Pampa, South	764	25,375	4,625	256
Pampa, West	4,373	98,620	46,380	1,081
Roxana-Noel	2,102	29,908	15,092	375

PRODUCTION AND RESERVES—NEW MEXICO

(In thousands of barrels)

Arrowhead	1,059	16,867	18,133	120
Brunson	2,143	9,539	25,461	88
Cooper-Jal	868	27,175	10,825	111
Drinkard	5,538	22,653	57,347	373
Eunice	3,898	99,566	50,434	456
Grayburg-Jackson	1,750	26,613	18,387	322
Hare	889	1,427	13,573	26
Hobbs	3,924	131,267	48,733	260
Langlie-Mattix	1,546	26,248	18,752	407
Maljamar	2,011	21,391	28,609	263
Monument	6,168	106,782	103,218	489
Paddock	1,378	6,529	13,471	103
Vacuum	4,546	52,673	77,327	409

PRODUCTION AND RESERVES—LOUISIANA

(In thousands of barrels)

NORTH LOUISIANA

Bellevue	497	13,142	4,858	315
Benton	1,401	4,519	9,481	13
Caddo	5,740	189,819	35,181	3,050
Catahoula Lake, West	727	879	3,121	29
Cotton Valley	2,719	64,384	30,616	167
Delhi-Big Creek	8,191	45,493	119,507	375
Haynesville	4,311	107,421	27,579	369
Haynesville, East	1,065	2,500	2,500	55
Holly Ridge	790	7,507	7,493	40
Homer	830	79,883	10,117	323
Knowles	1,166	2,649	7,351	33
Lake St. John	7,514	37,187	57,813	145
Lisbon	3,639	20,476	17,524	307
Little Creek	496	7,180	4,820	67
Nebo	2,296	26,831	23,169	163
Olla	1,903	30,264	19,736	168
Ora	1,096	6,658	5,342	214
Rodessa	1,172	93,988	11,012	250
Saline Lake	555	1,027	2,973	14
Sligo	490	7,075	2,925	58
Urania	940	32,758	7,242	247

SOUTH LOUISIANA

Anse la Butte	2,197	24,159	25,841	91
Avery Island	2,637	11,701	33,299	38
Barataria	1,963	14,377	20,623	31
Barataria, West	1,477	5,317	14,683	27
Bay de Chene	787	1,831	18,169	14
Bay St. Elaine	2,242	8,328	21,672	41
Bay Marchand	1,932	2,329	22,671	21
Bayou Blue	1,045	7,616	10,384	60
Bayou des Allemands	838	3,359	11,641	27
Bayou Sale	4,746	33,071	56,929	71
Big Island	853	1,164	13,836	33
Black Bayou	877	16,889	13,111	28
Bosco	794	30,947	9,053	41
Caillou Island	5,240	55,980	39,020	89
Cankton, North	765	3,658	6,342	28
Chacahoula	734	7,783	7,217	30
Charenton	1,362	20,125	14,875	110
Crowley, North	1,757	19,736	20,264	46
David Haas	1,178	2,960	13,040	21
Delta Duck Club	751	3,321	11,679	16
Delta Farms	7,653	39,068	55,932	119
Dog Lake	898	7,346	10,654	21
Egan	2,155	10,799	29,201	67
Eola	703	26,352	8,648	54
Erath	5,071	41,705	83,295	31
Garden Island Bay	1,612	16,739	16,261	50
Gibson and East	705	15,912	10,088	32
Gibson, Northeast	841	9,319	8,681	17
Golden Meadow	5,123	40,848	49,152	235
Good Hope	2,225	11,499	23,501	34
Grand Bay	3,743	31,546	38,454	73
Gueydan and West	2,217	16,033	23,967	50
Hackberry, East	1,206	41,024	13,976	54
Hackberry, West	2,238	29,817	30,183	70
Horseshoe Bayou	1,268	7,452	17,548	16
Iberia	1,466	42,170	17,830	57
Iowa	2,006	68,876	31,124	63
Jennings	1,112	102,066	17,934	84

SOUTH LOUISIANA (Continued)

	1950 production	January 1, 1951 Cumulative	January 1, 1951 Estimated reserves	No. of wells
Lafitte	4,320	65,084	59,916	71
Lake Chicot	1,028	7,941	12,059	24
Lake Mongoulois	701	2,466	12,534	12
Lake Pelto	1,631	12,137	15,863	31
Lake Salvador	1,990	14,288	21,712	25
Lake Verret, West	1,463	11,419	14,581	45
La Pice	809	5,785	9,215	20
Leeville	2,118	37,553	20,447	96
Main Pass area	1,319	1,647	13,353	11
Paradis	3,653	34,208	55,792	77
Pine Prairie	1,180	13,783	11,217	71
Pointe-a-la-Hache	1,657	1,956	16,044	28
Port Barre	1,511	21,413	14,587	76
Quarantine Bay	3,717	33,083	41,917	59
Romere Pass	558	558	14,442	12
St. Gabriel	1,575	15,765	16,235	35
Section 28 Dome	1,281	3,901	16,099	31
Sunshine	734	891	11,109	17
Tepetate	717	16,583	10,417	58
Tepetate, North	1,043	3,430	11,570	53
Tepetate, West	2,032	10,834	19,166	42
University	2,907	30,873	29,127	79
Venice	4,992	33,745	56,255	69
Ville Platte	1,850	42,104	17,896	242
Vinton and North Flank	3,928	67,998	42,002	125
Weeks Island	5,154	10,644	69,356	51
West Bay	2,392	14,017	30,983	44
West Cote Blanche Bay	1,686	10,063	17,937	35
Whitecastle	1,715	17,279	18,721	38
White Lake, East	1,319	9,774	20,226	23

PRODUCTION AND RESERVES—MISSISSIPPI

(In thousands of barrels)

Baxterville	4,895	21,134	73,866	160
Brookhaven	4,747	20,622	29,378	150
Carthage Point	426	2,011	7,989	12
Cranfield	5,889	30,716	69,284	105
Eucutta	1,991	14,008	22,992	123
Gwinville	448	1,671	6,329	80
Heidelberg	3,498	24,954	85,046	170
La Grange and South	4,386	12,877	27,123	146
Mallalieu	3,576	17,435	27,565	103
Pickens	994	13,345	11,655	42
Pine Ridge	411	1,035	6,965	11
Tinsley	5,189	117,785	57,215	284
Yellow Creek, E. & W.	1,525	3,296	14,704	95

PRODUCTION AND RESERVES—ARKANSAS

(In thousands of barrels)

Atlanta	991	12,849	14,151	60
Buckner	800	9,014	8,986	52
Cairo	677	1,398	6,602	18
Dorcheat-Macedonia	995	14,117	10,883	135
Fouke	909	7,365	8,635	52
Magnolia	4,525	63,932	46,068	117
McKamie-Patton	1,241	10,764	9,236	33
Midway	2,796	22,090	27,910	46
Schuler	2,750	64,902	35,098	87
Smackover	4,024	426,801	53,199	1,445
Stephens	1,791	20,807	11,193	415
Urbana	492	10,489	5,511	109
Village	1,674	12,019	12,981	92
Wesson	3,438	12,040	22,960	166

PRODUCTION AND RESERVES—OKLAHOMA

(In thousands of barrels)

Allen (Deep)	1,359	62,334	17,666	322
Alma, North	964	1,648	3,352	81
Apache	1,337	17,522	14,478	45
Avant	529	100,086	9,914	624
Bebee	1,272	19,466	6,534	312
Bowlegs	1,201	131,522	18,478	185
Brock, West	1,114	2,747	2,253	95
Burbank	2,124	230,445	99,555	1,687
Burbank, South	860	47,194	7,806	219
Cache Creek	1,511	8,206	6,794	293
Cement	4,091	60,097	39,903	635
Ceres, South	673	2,825	2,175	65
Chitwood	511	2,046	4,954	16
Coon Creek	1,363	6,907	8,093	40
Crescent	448	22,852	9,148	129
Cromwell	577	63,400	6,600	199
Cumberland	3,628	36,750	38,250	145
Cushing	2,759	385,162	39,838	1,536
Davenport, South	584	2,581	2,419	80
Earlsboro	513	132,230	7,770	123
Edmond	392	23,868	3,132	64
Edmond, West	3,914	91,897	58,103	793
Elk City	5,066	5,917	114,083	107

OKLAHOMA (Continued)

	1950 production	January 1, 1951 Cumulative	January 1, 1951 Estimated reserves	No. of wells
Empire-Comanche	677	30,352	6,648	406
Eola	595	1,368	2,632	8
Fitts	1,026	108,231	11,769	465
Fourdee	633	2,116	3,884	91
Fox-Graham	923	46,165	4,835	389
Garber	415	59,960	5,040	448
Glenn	2,551	241,092	33,908	1,725
Golden Trend	17,716	52,269	127,731	1,005
Happy Valley	802	1,212	3,788	60
Healdton	2,382	213,341	31,659	1,987
Hewitt	4,320	114,095	15,905	1,104
Hoover, Northwest	1,034	3,432	2,568	146
Inconium, Northwest	639	2,438	1,562	24
Knox	1,886	23,628	16,372	312
Little River	1,016	124,035	10,965	180
Lone Grove, Southwest	834	7,398	5,602	113
Lucien	670	36,670	3,330	116
Norfolk, West	386	1,663	2,337	78
Oklahoma City	6,785	675,265	74,735	627
Olympic	646	14,815	10,185	297
Oscar	429	13,966	4,034	232
Palacine, South	1,637	1,876	6,124	174
Pauls Valley	1,091	18,423	9,577	73
Perry, Northwest	466	1,348	3,652	26
Ramsey	767	14,262	7,738	32
Ringwood	1,927	2,309	18,691	165
Seminole City	1,164	154,850	15,150	320
Sholem Alechem and Northwest	8,545	62,856	55,144	796
Soldier Creek	777	5,836	6,164	318
Stroud	366	18,140	3,860	267
St. Louis	1,405	174,267	15,733	403
Tatums	3,456	63,659	31,341	967
Tonkawa	251	124,860	3,140	101
Velma	9,806	50,392	54,608	1,178
Velma, West	421	2,984	4,016	45
Watchorn, East	385	6,398	2,602	26
Witcher	1,942	5,502	9,498	165
Yale-Quay	825	28,299	6,701	196
Northeast Okla. stripper	5,026	394,169	65,831	13,460

PRODUCTION AND RESERVES—KANSAS

(In thousands of barrels)

Adell	372	1,980	3,020	38
Augusta	432	45,345	4,655	171
Barry	687	4,513	3,487	59
Beaver	471	3,722	4,278	78
Bemis-Shutts	4,681	64,131	30,869	553
Berland	895	1,237	2,763	98
Big Creek	1,038	12,194	5,806	208
Bloomer	2,716	35,758	24,242	298
Bornholdt	519	13,040	4,960	131
Boyd	481	2,330	2,670	61
Bryant	447	538	2,462	57
Burnett	2,747	37,205	22,795	274
Burnett, Southwest	719	2,275	5,725	76
Burrton-Haury	1,127	45,450	9,550	349
Carmi	667	8,435	6,565	105
Chase	3,078	56,465	23,535	539
Chitwood	655	5,824	4,176	74
Drach	499	4,321	3,679	53
Edwards	1,002	12,403	7,597	104
El Dorado	3,019	204,713	50,287	1,819
Elbing	550	21,861	3,139	84
Fairport	1,243	22,225	7,775	195
Fankhouser	636	3,151	2,849	60
Forest Hill	525	2,647	2,353	64
Geneseo	1,958	27,993	16,007	202
Gorham	1,406	37,348	12,652	248
Hall-Gurney	3,159	43,957	26,043	791
Hittle	372	8,518	3,482	46
Kraft-Prusa	5,870	49,410	35,590	665
Lindsborg	507	5,781	3,219	104
Max	570	3,632	4,368	70
Morel	1,337	10,152	9,848	143
Northampton	524	1,014	2,986	32
Otis-Albert	669	8,096	6,904	147
Ray	1,484	11,142	6,858	139
Raymond	452	12,646	5,354	89
Richardson	611	10,548	4,452	64
Ritz-Canton	538	41,699	5,301	187
Russell	389	8,745	3,255	72
Seeley-Wick	956	16,765	8,235	328
Silica	5,147	94,456	30,544	835
Sittner	414	3,184	2,816	58
Stoltenberg	1,962	31,621	16,379	355
Thrall-Agard	615	23,982	6,018	253
Trapp	8,645	123,248	66,752	1,329
Virgil, North	387	23,692	4,308	355
Walters	403	5,034	3,966	55
Webster	404	1,496	3,504	51
Zenith-Peace Creek	812	36,966	13,034	304
E. Kansas stripper	4,483	176,622	38,378	8,575

PRODUCTION AND RESERVES—ILLINOIS

(In thousands of barrels)

	1950 production	January 1, 1951 Cumulative	January 1, 1951 Estimated reserves	January 1, 1951 No. of wells
Albion	1,187	9,416	6,584	325
Allendale	566	5,881	4,119	316
Assumption, North	1,213	2,305	5,695	123
Benton	436	21,148	3,852	236
Boyd	887	7,491	7,509	110
Centralia	1,250	35,380	12,620	575
Clay City-Noble	8,142	133,782	51,218	2,568
Dale-Hoodville	1,187	27,878	12,122	433
Elbridge	453	542	2,458	37
Fairfield	508	1,386	2,614	69
Inman, East	1,050	8,448	6,552	320
Inman, West	407	1,498	2,502	140
Iola	437	6,871	3,129	187
Johnsonville	829	26,116	5,884	351
Loudon	7,436	157,143	52,857	2,052
Marine	872	6,542	5,458	144
Mattoon	594	9,504	5,496	413
Maud, North	1,125	2,772	5,228	232
Maunie, South	365	3,218	1,782	102
Mills Shoals	375	5,915	2,085	165
New Harmony-Keensburg	2,376	57,970	17,030	1,165
Patoka	646	10,096	5,904	116
Phillipstown	829	10,160	3,840	282
Raccoon Lake	369	491	1,509	33
Roland	652	10,080	4,920	210
Ruark	667	770	2,230	19
Rural Hill	1,105	13,100	4,900	303
Sailor Springs	1,833	17,657	9,343	606
Salem	3,726	215,947	84,053	2,205
St. James	455	11,369	3,631	169
Stokes	399	6,498	1,502	169
Woodlawn	449	12,047	3,953	145
Bridgeport	2,012	244,419	40,581	3,581
Robinson	1,532	158,561	16,439	6,675

PRODUCTION AND RESERVES—MICHIGAN

Beaver Creek	794	2,076	2,924	72
Coldwater	1,634	9,884	8,116	76
Deep River	2,063	14,817	12,183	108
Kawkawlin	719	6,491	4,509	224
Kimball Lake	860	4,457	4,543	87
Pentwater	1,452	3,173	6,827	122
Porter-Yost	429	44,688	5,312	271
Reed City	751	37,684	6,316	167
Stony Lake	1,011	3,141	4,859	71

PRODUCTION AND RESERVES—ROCKY MOUNTAIN AREA

COLORADO

Iles Dome	503	13,533	6,467	25
Rangely	18,806	75,501	199,499	531
Wilson Creek	2,799	18,688	21,312	31

MONTANA

Cat Creek	405	18,054	3,946	178
Cut Bank	3,142	66,999	33,001	1,121
Elk Basin	1,397	11,297	33,703	56
Kevin-Sunburst	1,482	55,230	19,770	1,435
Pondera	544	8,943	6,057	223

WYOMING

Big Muddy	695	32,181	5,819	202
Big Sand Draw	2,047	9,104	40,896	11
Byron Dome	2,452	25,006	18,994	51
Cole Creek and South	835	5,488	12,512	41
Creeks Gap	551	3,715	6,285	9
Elk Basin	5,088	44,148	105,852	243
Frannie	2,906	18,921	16,079	94
Garland	2,409	15,993	9,007	78
Grass Creek	1,313	39,559	8,441	358
Hamilton Dome	3,333	19,282	30,718	86
Horse Creek	647	1,678	4,322	27
Hudson	418	3,655	6,345	34
La Barge	389	11,816	4,184	142
Lance Creek	2,554	86,251	23,749	236
Little Buck Creek	802	2,452	5,548	26
Little Buffalo Basin	1,291	4,953	7,047	25
Lost Soldier	3,479	44,454	35,546	53
Meadow Creek, North	975	975	14,025	50
Mush Creek area	5,361	9,792	40,208	370
Oregon Basin	2,667	50,492	39,508	186
Pilot Butte	647	3,689	6,311	29
Quealy	387	3,911	2,089	22
Rock River	664	28,255	7,745	55
Salt Creek	4,170	339,669	60,331	1,792
Steamboat Butte	2,333	14,934	35,066	29
Sussex	725	1,049	10,951	39
Wertz	1,714	19,815	15,185	27
Winkleman Dome	829	3,332	6,668	9
Worland	2,199	7,159	27,841	25

PRODUCTION AND RESERVES—CALIFORNIA

(In thousands of barrels)

LOS ANGELES BASIN

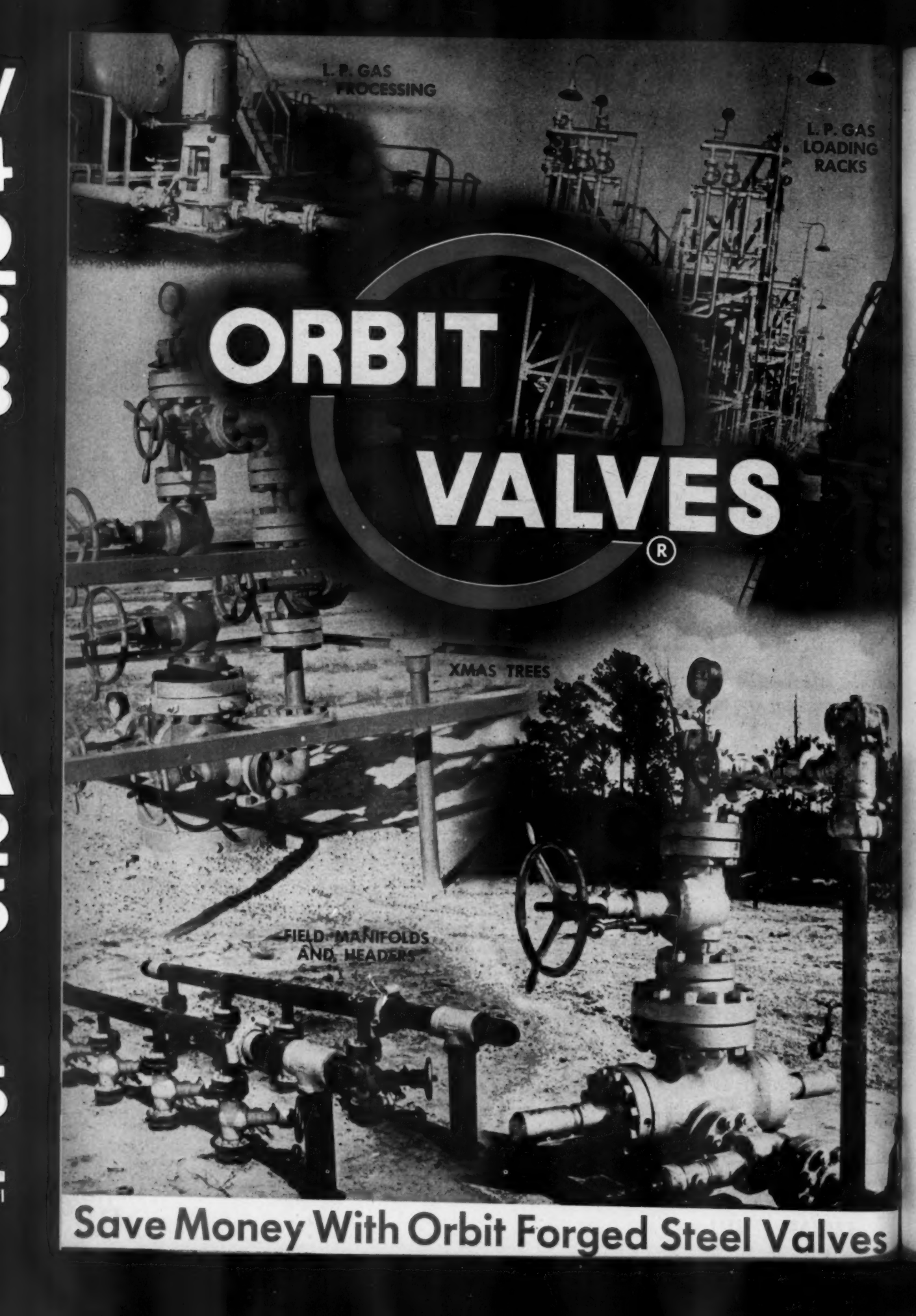
	1950 production	January 1, 1951 Cumulative	January 1, 1951 Estimated reserves	January 1, 1951 No. of wells
Brea-Olinda	4,540	207,727	57,273	442
Coyote, East	1,743	60,168	18,832	214
Coyote, West	3,968	168,800	71,200	306
Dominguez	4,429	187,066	57,934	351
East Los Angeles	564	2,008	5,992	17
Huntington Beach	20,558	458,720	211,280	1,328
Inglewood	4,882	174,843	40,157	398
Long Beach	8,450	751,373	78,627	1,197
Montebello	2,188	155,515	24,485	340
Newport	1,795	11,471	28,529	197
Playa del Rey	612	55,035	4,965	112
Potrero	442	7,685	4,315	38
Richfield	2,364	114,331	25,669	351
Rosecrans-Athens	1,989	66,845	18,155	211
Sansinena	530	747	4,253	17
Santa Fe Springs	5,288	533,500	56,500	534
Seal Beach	4,277	122,500	37,500	212
Torrance	2,618	130,766	29,234	767
Wilmington	46,353	506,822	453,178	2,281

SAN JOAQUIN VALLEY

Antelope Hills	435	4,579	5,421	33
Belgian anticline	454	1,563	3,437	17
Belridge, North	1,013	59,795	22,205	125
Belridge, South	1,914	47,873	33,127	730
Buena Vista	12,033	389,940	130,060	997
Canal	651	15,227	9,773	36
Coalinga, Eastside	4,439	275,711	64,289	784
Coalinga, Northeast	1,073	32,319	17,681	58
Coalinga, Nose	15,702	167,722	192,278	146
Coalinga, Westside	2,046	167,349	22,651	773
Coles Levee, North	6,110	55,385	59,615	130
Coles Levee, South	2,310	18,238	26,762	40
Cuyama, South	8,465	9,653	140,347	179
Cymric	2,671	22,666	37,334	210
Edison	3,953	35,040	39,960	371
Elk Hills	2,694	204,834	445,166	638
Fruitvale	2,846	48,316	26,684	225
Gosford, East	685	1,071	8,929	20
Greeley	4,056	46,205	38,795	95
Guijarral Hills	5,446	8,442	56,558	80
Helm	814	8,142	8,858	66
Jacalitos	1,564	11,117	18,883	110
Kern Bluff	562	1,897	8,103	114
Kern Front	2,419	73,680	31,320	661
Kern River	3,507	309,351	50,649	2,665
Kettleman North Dome	10,480	372,373	127,627	419
Lost Hills	2,010	66,890	18,110	603
McKittrick	523	96,498	8,502	220
McKittrick Front	426	7,138	5,862	73
Midway-Sunset	11,414	760,196	164,804	2,928
Mount Poso	2,922	92,036	32,964	313
Mount Poso, North	388	7,968	4,032	80
Mountain View	1,248	52,857	12,143	176
Paloma	5,677	30,842	64,158	72
Pleasant Valley	965	8,739	11,261	21
Premier	897	14,040	8,960	168
Race Track Hill	595	3,493	6,507	36
Raisin City	1,606	8,832	7,168	79
Rio Bravo	3,768	55,326	44,674	97
Riverdale	780	9,694	8,306	39
Round Mountain	1,365	39,843	18,157	184
Russell Ranch	7,959	15,678	64,322	139
Salt Creek	1,300	7,692	14,308	68
Tejon Ranch	805	4,789	10,211	96
Ten Section	2,092	48,554	26,446	126

COASTAL DISTRICT

Aliso Canyon	1,453	11,708	18,292	73
Bardsdale	645	3,919	6,081	82
Capitan	777	14,342	10,658	70
Cat Canyon, West	4,607	45,949	64,051	188
Del Valle	1,357	13,152	16,848	52
Elwood	2,301	87,978	22,022	72
Gato Ridge	937	17,575	10,425	44
Lompoc	890	18,013	11,987	71
Newhall-Potrero	3,039	22,926	37,074	102
Oak Canyon	606	4,858	7,142	22
Orcutt	1,350	110,567	19,433	302
Ramona	1,777	7,885	18,115	107
Padre Canyon	2,451	13,264	26,736	82
Placerita Canyon	5,810	11,009	33,991	314
Rincon	1,311	26,192	18,808	105
San Miguelito	2,884	23,196	36,804	76
Santa Maria Valley	4,527	101,575	73,425	486
South Mountain	2,396	34,946	35,054	208
Ventura Avenue	20,944	397,591	202,409	775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REVIEW and FORECAST

Discovery and Development Data for 1950's New Pools and New Pays

SOUTHWEST TEXAS

District 1

NEW POOLS

DENHAWKEN—Wilson, April; Hewitt & Dougherty 1 T. D. Mansford, Jess F. Rodriguez Survey, A-263, TD 7,315 ft., Basal Wilcox, 4,279-83 ft., 10,000,000 cu. ft. gas, open flow.

DILWORTH—McMullen, September; H. R. Smith and American Republics Corp. 1 J. C. Dilworth, Jr., Rafael Vasquez Survey 42, A-486, TD 8,074 ft., Wilcox, 4,930-35 ft., 130 bbl. oil. (This well also salt-dome discovery).

ELROY—Travis, October; Anderson-Prichard Oil Corp. 1 Albin C. Jacobson, Michael Green Survey, TD 836 ft., Serpentine, 814-36 ft., 26 bbl. oil.

HABY—Medina, February; H. A. Pagenkopf 1 Edwin J. Haby, John Techene Survey 47, TD 1,270 ft., Escondido, 570-92 ft., 9 bbl. oil.

HAGIST RANCH—McMullen, June; Stanolind Oil & Gas Co. 1 Hagist Ranch, Inc., R. W. Mills Survey, TD 8,021 ft., Wilcox, 7,696-7,704 ft., 34,000,000 cu. ft. gas, and ungaged amount of condensate.

HAGIST RANCH—McMullen, September; Stanolind Oil & Gas Co. B-1 Hagist Ranch, Inc., BBB&CRR Co. Survey 3, TD 8,023 ft., sand 7,125-40 ft., 1,275,000 cu. ft. gas, plus ungaged amount of condensate.

JAMBERS—McMullen, May; George W. Graham 1 George T. Jambers, James Freal Survey 155, A-189, TD 5,903 ft., Wilcox 5,899-5,902 ft., 120 bbl. oil.

KINCAID—Uvalde, February; Phillips Petroleum Co. 1 F. T. Kincaid, Hipolito Sotello Survey 377, TD 1,790 ft., Navarro, 855-85 ft., 785,000 cu. ft. gas and some condensate.

LaPARITA—Atascosa, May; LaParita Oil Co. 1 Tom Ventrcek, John Neal Survey 1,190, TD 1,535 ft., Carrizo, 1,531-34 ft., 47 bbl. oil. 4 wells at year end.

ROCKY CREEK—Dimmit, August; J. C. McCabe, et al, 1 Mayflower Investment Co., Survey 667, TD 3,015 ft., sand, 2,114-24 ft., 59 bbl. oil. 2 wells at year end.

WINTER GARDEN—Dimmit, February; Continental Oil Co. 2 McKnight, R. S. Riddle Survey 9, TD 3,310 ft., Olmos 5-A, 2,804-11 ft., 5,100,000 cu. ft. gas.

ZOBOROSKI—Guadalupe, January; F. D. Glass 1 Frank Zoborowski, Joseph D. Clements Survey 14, TD 2,415 ft., Taylor, 2,374-2,415 ft., 439 bbl. oil.

UNNAMED—Bastrop, October; Adams & Jackson 1 Duran, A. Flint Survey, TD 2,237 ft., sand, 2,164-82 ft., 13 bbl. oil.

UNNAMED—Bexar, March; C. J. Brown 1 W. A. Petty, Lot 1, Block 55, San Antonio Irrigated Farms Subd., J. H. Pickens Survey 7, A-17, TD 1,482 ft., Navarro-Taylor, 1,174-1,235 ft., 13 bbl. oil.

UNNAMED—Bexar, July; Lee & Hardcastle 1 M. Penaniezk, J. Martinez Survey 14, TD 1,620 ft., Navarro-Taylor, 1,558-1,620 ft., 25 bbl. oil.

UNNAMED—Bexar, April; N. B. Duke 1 A. Pinaniezki, J. W. Rials Survey 11, TD 1,530 ft., Navarro-Taylor, 1,514-30 ft., 8 bbl. oil.

UNNAMED—Gonzales, September; Producers Corp. of Nevada 1 Helen Williams et al, William C. Hargis Survey, A-273, TD 5,964 ft., Edwards lime, 5,802-5,940 ft., 214 bbl. oil.

UNNAMED—Guadalupe, April; Freeman O. Crenshaw 1 I. A. Echels, E. Smith League, TD 1,008 ft., sand 700-85 ft., 2 bbl. oil.

UNNAMED—McMullen, August; Delhi Oil Corp. 1 Lulu W. Pursch et al, BS&F Survey 116, A-1,604, TD 8,009 ft., Wilcox, 7,165-90 ft., 25 bbl. condensate.

UNNAMED—Milam, August; G. A. Wilson 1 H. P. Culpepper, B. W. Holtzclaw Survey, TD 496 ft., sand, 341-61 ft., 6 bbl. oil.

UNNAMED—Travis, October; Anderson-Prichard Oil Corp. 2 Joe A. Martin Estate, Michael Green Survey, TD 662 ft., Serpentine 630-62 ft., 81 bbl. oil.

NEW PAYS

CHARLOTTE—Atascosa, November; Humble Oil & Refining Co. 2 Emilia Lujan, John Noble Survey 1438, TD 7,014 ft., Austin chalk, 7,003-06 ft., 56 bbl. oil.

DILWORTH—McMullen, November; H. R. Smith and American Republics Corp. 2 J. C. Dilworth, Jr., Rafeal Vasquez Survey 42, A-486, TD 5,876 ft., Wilcox, 5,435-41 ft., 146 bbl. oil.

HAGIST RANCH—McMullen, September; Stanolind Oil & Gas Co. B-1 Hagist Ranch, Inc., BBB&CRR Co. Survey 3, TD 8,023 ft., sand at 7,125-40 ft., 1,275,000 cu. ft. gas, plus ungaged amount of condensate.

WINTER GARDEN—Dimmit, February; Continental Oil Co. 2 McKnight, R. S. Riddle Survey 9, TD 3,310 ft., Olmos 5-A, 2,804-11 ft., 5,100,000 cu. ft. gas.

TEXAS GULF COAST

District 2

NEW POOLS

BARRY—DeWitt, October; United Producing Co., Inc. 1 A. J. House, Thos. Barry Survey, A-82, TD 7,806 ft., Yegua, 5,336-46 ft., 175 bbl. condensate.

BATTLE—Victoria, September; Liebman-Bigson Drilling Co. and Morris Cannan-Hawn Bros. 1 Pedro Pardo, P. Gallardo Survey, A-32, TD 5,251 ft., Catahoula, 4,756-62 ft., 100 bbl. oil. 2 wells at year end.

BEN SHELTON—Victoria, January; P. R. Rutherford, Heep Oil Corp. and Conroe Drilling Co. B-1 Mrs. Ben Shelton, Placedo Benavides Survey, A-124, TD 7,796 ft., Frio, 7,428-31 ft., 161 bbl. oil. 7 wells at year end.

BERCLAIR—Goliad, March; Hugh Kirkpatrick 1 Mrs. Mary Lutenbacker, Sampson McTornall Survey, TD 3,623 ft., Basal Frio, 3,194-200 ft., 99 bbl. oil. (This is an oil discovery in Berclair gas field). 4 wells at year end.

BLANCONIA, EAST—Bee, January; W. R. Quin et al 1 Bessie Barber et al, James and William St. John Survey, TD 5,255 ft., Sultex-Frio, 5,249-55 ft., 80 bbl. oil.

BOEHM—Refugio, October; Arnold O. Morgan 1 F. J. Boehm, Esteban Lopez Survey, TD 7,856 ft., sand, 6,302-06 ft., 113 bbl. oil.

CODLELE, WEST—Jackson, February; H. J. Porter 3 Rudolph Yaussi estate et al, John McWhite Survey, A-268, TD 2,796 ft., Frio, 2,725-27 ft., 72,000,000 cu. ft. gas.

DUFF—DeWitt, November; Hawn Bros. et al 1 Schaefer, James Duff Survey, A-153, TD 8,000 ft., Wilcox, 7,610-14 ft., 161 bbl. oil.

FALLS CITY, WEST—Karnes, May; Shell Oil Co. 1 Ben Korzekwa, Louis Manchaca Survey, TD 6,430 ft., Wilcox, 6,257-64 ft., 80 bbl. oil.

FORDTRAN, WEST—Victoria, January; Jergins Oil Co. 1 Cora T. Hensley, IRR Survey 5, A-206, TD 9,520 ft., Wilcox, 8,240-44 ft., gas well, no gage.

HEATON—DeWitt, April; Shell Oil Co. 1 Hubert Heaton, Thomas Berry Survey, A-82, TD 9,000 ft., Wilcox, 7,727-50 ft., 152 bbl. oil.

HELEN GOHLKE—DeWitt, October; Shell Oil Co. 1 Gohlke Heirs, T. J. Thigpen Survey, A-614, TD 8,514 ft., Wilcox, 8,142-47 ft., 320 bbl. oil. 2 wells at year end.

MAXINE, EAST—Live Oak, October; McCarrick Oil Co. 1 James D. Sullivan et al., Simmons Subd., TD 7,285 ft., Wilcox, 7,260-70 ft., 31,000,000 cu. ft. gas.

McFADDIN, EAST—Victoria, August; Union Producing Co. et al A-20 McFaddin et al, C. O. Edwards Survey, A-526, TD 6,015 ft., Frio-Vicksburg, 5,643-47 ft., 152 bbl. oil. 6 wells at year end.

MINNITA—Victoria, March; Minnie S. Welder 5 Minnie S. Welder, Phillips Dimmit Survey, TD 5,360 ft., Frio, 4,962-66 ft., 63 bbl. oil. 2 wells at year end.

MASSINGILL—Bee, September; W. R. Quin & T. F. Murchison-Massingill Operator's Account 1 J. A. Hunes, T. H. Hart Survey, A-28, TD 5,596 ft., Yeagua 5,530-31 ft., 2,609,000 cu. ft. gas.

RUNGE, NORTH—Karnes, March; Edwin B. Cox and Jake L. Hamon 1 A. & L. Schoore, Victor Blanco Survey, A-3 with San Antonio River, TD 6,762 ft., Wilcox, 6,545-46 ft., 139 bbl. oil. 2 wells at year end.

RUSSEK—Lavaca, January; The Texas Co. A-3 Cora Russek NCT-1, Joshua C. Reynolds Survey, TD 10,224 ft., Yegua, 5,284-90 ft., 136 bbl. oil. 5 wells at year end.

SKIDMORE—Bee, August; Well Service & Drill Co. of Texas 1 J. H. O'Connor, Phoebe Crain Survey, A-16, TD 4,260 ft., Frio, 4,218-36 ft., 128 bbl. oil.

SWAN LAKE—Jackson, March; Southern Minerals 1 G. T. Brooking et ux, Josiah H. Bell Survey, A-7, TD 9,027 ft., Frio, 6,818-52 ft., 5,800 000 cu. ft. gas, Frio, 6,003-33 ft., 15,000 cu. ft. gas.

TERRELL POINT, WEST—Goliad, November; Paul J. Fly et al 1 Lula Swickheimer et al, W. P. Patterson Survey, A-335, TD 4,863 ft., Basal Frio, 4,656-64 ft., 135 bbl. oil.

WAJACK—Jackson, August; Gulf South Oil Corp. 1 William Niebuhr et al, T. M. Dorsett Survey, TD 6,215 ft., Frio, 5,736-40 ft., 103 bbl. oil.

UNNAMED—Bee, March; Bridwell Oil Co. 1 F. V. Thomas, John Kelly Survey, A-35, TD 5,610 ft., sand 4,137-40 ft., 9,600,000 cu. ft. gas.

UNNAMED—Bee, June; Curtis Singleton Drilling Co. 1 W. C. McCord, P. Wilcox Survey, A-491, TD 1,976 ft., sand 1,961-71 ft., 3,800,000 cu. ft. gas.

UNNAMED—Bee, October; Morris Cannan and Texita Oil Co. 1 P. C. Toh, H. H. Williams Survey, A-403, TD 4,197 ft., Frio, 4,188-95 ft., 35 bbl. oil.

UNNAMED—Bee, October; C. G. Glasscock 1 Mrs. Sudie Scott, Jose Maria Urange, 11 League grant, TD 4,600 ft., sand, 3,272-78 ft., 2,800,000 cu. ft. gas.

UNNAMED—Calhoun, September; Alcoa Mining Co.-Southern Production Co. 1 Mrs. Mary A. Hubbard, Gulf Coast Fruit & Land Co. Subd. of Benito Morales grant, A-28, TD 9,661 ft., Marginulina, 8,683-86 ft., and 8,690-99 ft., 12,500,000 cu. ft. gas

UNNAMED—Calhoun, November; William Herbert Hunt 1 W. L. Traylor, Phillip Dimmit Survey, TD 9,384 ft., sand 8,816-23 ft., 540,000 cu. ft. gas.

UNNAMED—DeWitt, August; Deep Rock Oil Co. 1 Edwin Nagel, Mumford House Survey, A-226, TD 8,717 ft., Wilcox, 7,675-95 ft., gas well, no gage.

UNNAMED—Goliad, February; Morris Mizel and Rock Hill Oil Co. 1 Erwin Landgrebe, Thomas Hancock Survey, A-142, TD 8 008 ft., Wilcox, 7,538-45 ft., 10,000,000 cu. ft. gas.

UNNAMED—Goliad, April; Ranger & Coffield 1 W. Karnei, James Cunningham Survey, TD 8,255 ft., Wilcox, 7,896-906 ft., 2,000,000 cu. ft. gas.

UNNAMED—Goliad, February; Rock Hill Oil Co., Daugherty & Kidd, and Stanolind Oil & Gas Co. 1 J. B. Wilhelm, Kilgore Survey, A-172, TD 4,267 ft., Yegua, 3,219-24 ft., 1,450,000 cu. ft. gas.

UNNAMED — Jackson, August; Jake L. Hamon 1 Virginia Babb Wiley, Nestor Clay Survey, A-13, TD 6,400 ft., Marginulina 5,450-52 ft., 13 bbl. condensate.

UNNAMED—Jackson, July; J. M. Huber Corp. 1 Francis Koop, R. Musquez League, TD 7,750 ft., Frio, 6,260-65 ft., 9,000,000 cu. ft. gas.

UNNAMED—Jackson, February; Sohio Petroleum Co. 1 L. M. Nyegaard et ux, W. D. Southerland Survey, A-76, TD 6,728 ft., Frio, 6,416-21 ft., 43 bbl. oil.

UNNAMED — Jackson, August; Fred W. Shield 1 Laughter, James Kerr Survey, A-39, TD 4,007 ft., Frio, 3,992-4,002 ft., 13,500,000 cu. ft. gas.

UNNAMED — Jackson, August; Big Six Drilling Co. 1 Bishop Briffin, Tacitus Clay Survey, A-14, TD 3,007 ft., Catahoula, 2,417-21 ft., 49,000,000 cu. ft. gas.

UNNAMED—Lavaca, December; Horrigan & Fohs 1 Rosie Martisak et al, John Morris Survey, A-303, TD 9,906 ft., Wilcox, 9,696-9,736 ft., 74 bbl. oil.

UNNAMED—Live Oak, January; Henderson Coquat 1 W. H. Herring, Block 52, Simmons Subd., TD 6,934 ft., Wilcox, 6,910-18 ft., 113,000,000 cu. ft. gas.

UNNAMED—Live Oak, May; James G. McCarrick Trust, 1 Mary E. Sullivan, Simmons Subd., TD 7,504 ft., Wilcox, 6,805-17 ft., 56 bbl. oil.

UNNAMED—Live Oak, May; S. H. Howell 1 Joe Doubrava, Refugio County School Land Survey, A-399, TD 4,497 ft., sand 3,959-65 ft., 130,000,000 cu. ft. gas.

UNNAMED—Live Oak, April; Henderson Coquat 1 Wyatt Curry, AB&M Survey, A-53, TD 8,004 ft., Wilcox, 7,270-80 ft., 60,000,000 cu. ft. gas.

UNNAMED — Live Oak, March; Western Natural Gas Co. 1 Great Southern Life Insurance Co., Simmons Subd., TD 6,940 ft., Slick-Wilcox, 6,427-36 ft., gas well, no gage.

UNNAMED—Live Oak, September; Sunray Oil Corp. 1 J. C. Dillworth, Refugio County School Land Survey, A-398, TD 7,656 ft., Wilcox, 7,545-57 ft., 1,600,000 cu. ft. of gas plus 64 bbl. condensate.

UNNAMED—Refugio, October; Kirkwood & Co.-George K. Taggert A-1 St. John heirs, Refugio Town Tract grant, 3 miles SE of Refugio, TD 7,519 ft., sand, 5,558-66 ft., 88 bbl. oil.

UNNAMED—Victoria, June; E. C. Scurlock and M. S. Welder 1 Grace S. Henry et al, TD 5,365 ft., Frio, 3,822-28 ft., 108,000,000 cu. ft. gas.

UNNAMED — Victoria, October; Robert Reisenberg Trust, 1 W. L. Lipscomb, Raphael Rios Survey, A-283, TD 3,856 ft., sand 3,846-52 ft., 17,000,000 cu. ft. gas.

UNNAMED—Victoria, December; Quintana Petroleum Corp. 1-B Henderson & Pickering, A. B. Williams Survey, A-353, TD 7,020 ft., sand 6,852-55 ft., 125 bbl. oil.

NEW PAYS

BERCLAIR — Goliad, July; Kirkwood & Morgan, Inc. 2 B. & C. Wilkinson, W. P. Miller Survey, TD 3,236 ft., Frio, 2,814-20 ft., 59 bbl. oil. 1 well completed at year end.

BERCLAIR — Goliad, June; Kirkwood & Morgan, Inc. 1 B. & C. Wilkinson, W. P. Miller Survey, TD 3,173 ft., Segment "C"-Vicksburg, 3,169-71 ft., 30 bbl. oil. 22 wells completed at year end.

BERCLAIR—Goliad, August; Magnolia Petroleum Co. 1 John P. Forrest, Sampson McTornall Survey, TD 3,350 ft., sand 2,781-89 ft., 1,625,000 cu. ft. gas.

BERCLAIR—Goliad, May; Magnolia Petroleum Co. 1 C. C. Diebel, Sampson McTornall grant, A-195, TD 3,215 ft., Yegua, 2,537-43 ft., 5 bbl. oil. 1 well completed at year end.

BERCLAIR—Goliad, April; Hugh Kirkpatrick 1 Viola Arnold et al, Sampson McTornall Survey, TD 3,156 ft., sand, 3,145-55 ft., 87 bbl. oil. 3 wells completed at year end.

BLANCONIA—Bee, September; Bridwell Oil Co. 2 Fred Thomas, John Kell Survey, A-35, TD 5,120 ft., sand, 4,950-59 ft., 1,850,000 cu. ft. gas.

CABEZA CREEK, SOUTH—Goliad, February; Continental Oil Co. 1 Adrian Flores, Elliott Survey, A-119, TD 5,330 ft., Cook Mountain, 5,286-94 ft., 57 bbl. oil. 2 wells at year end.

GOTTSCHALT—Goliad, September; Humble Oil & Refining Co. 1 Hugo McMillen, T. H. Callihan Survey, TD 8,500 ft., sand, 7,483-98 ft., 5,000,000 cu. ft. gas.

HALLETSVILLE—Lavaca, July; Stanolind Oil & Gas Co. 1 Roeber Unit, James Campbell Survey, TD 8,486 ft., sand, 8,408-14 ft., 128 bbl. oil. 1 well completed at year end.

HEYSER—Victoria, April; Gulf Oil Corp. B-57 T. P. Traylor, Jose Esteban Galban Survey, A-34, TD 8,000 ft., sand, 6,142-53 ft., 152 bbl. oil. 5 wells completed at year end.

MINNITA — Victoria, June; Minnie S. Welder 6 Minnie S. Welder, Phillip Dimmit Survey, TD 5,350 ft., sand, 4,354-58 ft., 58 bbl. oil.

PLACEDO — Victoria, December; Sunray Oil Corp. 4 Lad Marek, William Rupley Survey, A-400, TD 5,780 ft., sand, 5,736-42 ft., 111 bbl. oil.

PLACEDO (OLD)—Victoria, March; J & C. Drilling Co. 5 Agnes West, W. Rupley Survey, TD 6,055 ft., sand, 5,443-46 ft. (new), dual completion, perf. 5,559-62 ft., 309 bbl. oil. 5 wells at year end.

PLUMMER, SOUTH—Bee, February; Midstates Oil Corp. 1 Willis A. Roberson, T. B. Barton Survey, A-114, TD 7,056 ft., Massive-Wilcox, 6,758-59 ft., 22,000,000 cu. ft. gas.

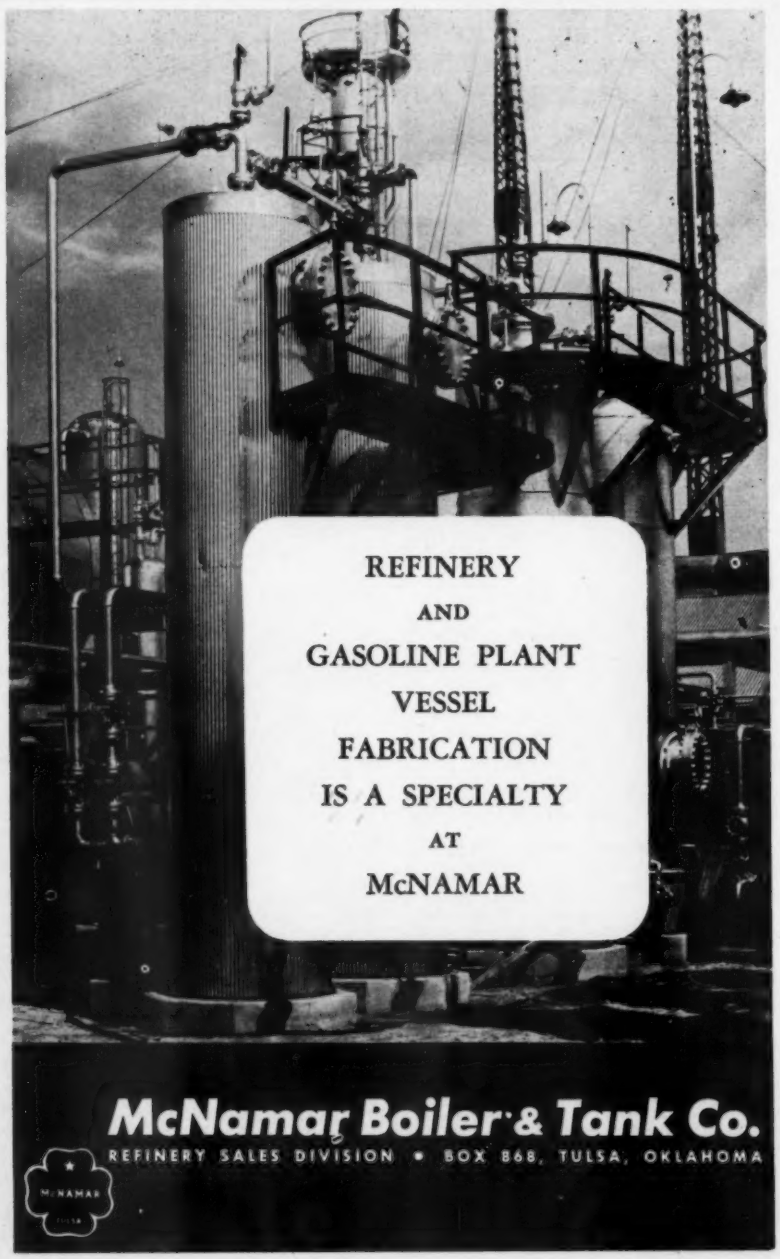
POWDERHORN LAKE — Calhoun, January; Brazos Oil & Gas Co. 2 State of Texas 33,724, State tract 49, Powderhorn Lake, TD 6,000 ft., sand, 5,175-200 ft., 146 bbl. oil. 5 wells at year end.

SWAN LAKE—Jackson, April; Southern Minerals Corp. 2 Lucille Seale estate, Josiah H. Bell Survey, A-7, TD 6,042 ft., sand, 6,036½-41½ ft., 81 bbl. oil. 17 wells at year end.

WEESATCHE—Goliad, June; W. O. Woodward 1 Housman & Ranger, John T. Payne Survey, A-232, TD 5,506 ft., sand, 4,756-66 ft., 3 bbl. oil. 2 wells at year end.

WELDER RANCH — Victoria, January; Southern Minerals Corp. 1 J. A. McFaddin Estate, IRR Survey 15, A-215, TD 5,986 ft., sand, 5,966-71 ft., gas well, no gage.

WYRICK—Refugio, April; Clymore Petroleum Corp. 4 Rettye O. Morris, Jose Maria and Juan Miguel Aldrete Survey, TD 5,400 ft., sand, 2,822-24 ft., 100,000,000 cu. ft. gas.



TEXAS GULF COAST

District 3

NEW POOLS

ALVIN TOWNSITE — Brazoria, January; H. L. Hunt 1 J. C. MacGregor unit, tract 14, Block F, Alvin Townsite, HT&B Survey 14, A-449, TO 11,032 ft., 10,578-87 ft., Frio, 4,400,000 cu. ft. gas.

ARCOLA—Brazoria, September; Floyd L. Karsten 1 Richard W. Sharp et al., J. S. Talmage Survey, A-561, TD 8,670 ft., 7,609-11 ft., 102 bbl. oil.

EAST ARNIM—Fayette, July; Continental Oil Co. 1 Georgia Jones, J. S. Menefee Survey, A-239, TD 2,172 ft., Arnim-Eocene perforated, o.h. 2,151-72 ft., 24 bbl. oil.

BIG HILL, NORTH—Jefferson, December; Glenn H. McCarthy B-1 W. D. Davidson estate, J. E. Broussard Survey, A-483, TD 11,417 ft., sand, 8,424-32 ft., 214 bbl. oil.

DAYTON, NORTH—Liberty, October; The Texas Co. 3 J. D. Williams et al, H&TC Survey 123, A-262, TD 2,551 ft., sand, 2,136-46 ft., 20,000,000 cu. ft. gas.

ECHO—Orange, April; Pacific Producing Corp. 1 First National Bank of Orange, Theron Strong Survey, A-25, dual completion, TD 8,946 ft., perf. 8,146-52 ft., 2,545,000 cu. ft. gas plus 44 bbl. distillate; perf. 8,276-80 ft., 10,400,000 cu. ft. gas. 2 wells at year end.

FETZER—Waller, February; The Texas Co. 1 A. E. Humphreys, John H. Pierson Survey, A-389, perf. 10,692-700 ft., TD 10,773 ft., 170 bbl. oil.

FISHER REEF, NORTH—Chambers, May; Humble Oil & Refining Co. E-1, Galveston Bay State Tract 17-B Galveston Bay, TD 9,291 ft., Frio, 8,790-800 ft., 12 bbl. condensate and 1,634,000 cu. ft. of gas.

GIST 7200—Newton, November; Houston Oil Co. et al A-1 Earl C. Hankamer, R. L. White Survey, A-922, TD 7,320 ft., sand 7,198-99 ft., 240 bbl. oil. 2 wells at year end.

HAMSHIRE, WEST—Jefferson, July; Meredith, Clegg & Hunt et al., 1 Earl C. Hankamer et al unit, T&NO Survey, Section 136, Lot 10, TD 12,809 ft., Lower Frio, 12,607-670 ft., 125,000,000 cu. ft. gas and 53 bbl. condensate per M.M.c.f. of gas.

HOUSH — Tyler, May; C. N. Housh 1 Charles Kieke, BBB&C Survey, A-108, TD 8,400 ft., Wilcox, perf. 8,367-84 ft., 181 bbl. oil. 5 wells at year end.

KOUNTZE—Hardin, April; General Crude Oil Co. et al 1 Ester Hooks et al, J. D. Knight Survey, A-353, TD 8,511 ft., 8,252-54 ft. in Yegua, 133 bbl. oil. 2 wells at year end.

LEMONVILLE—Orange; February; Houston Oil Co. of Texas—American Republics Corp. 1 E. P. Lipscomb et al, Josiah Brick Survey, A-48, TD 8,319 ft., 7,650-60 ft., 71,-000,000 cu. ft. gas.

MILLHEIM — Austin, July; G. S. Hammonds 1 Walter Schneider, James Cummings Survey, A-31, TD 11,062 ft., 10,061½-71½ ft., 135 bbl. oil.

MILLICAN—Brazos, May; Marshall Stone and C. H. Bass 1 Wharton Weems, J. M. Barrera Survey, A-67, TD 4,000 ft., 3,101-09 ft., 7,700,000 cu. ft. gas.

MOSS BLUFF DOME—Liberty, November; British American Oil Producing Co. 1 W. P. H. McFadden et al, James McFadden Survey, A-76, TD 6,572 ft., Frio, 5,846-64 ft., 135 bbl. oil. (Rediscovery). 2 wells at year end.

NONA MILLS — Hardin, April; General Crude Oil Co. et al 1 Kirby Lumber Co., H. A. Hooks Survey, A-871, TD 8,500 ft., 8,248-52 ft., Crockett Yegua, 390 bbl. oil. 14 wells at year end.

OLD NONA—Hardin, August; Sohio Petroleum Co. B-1 Nona Mills, WC RR Survey, A-519, TD 9,212 ft., 7,646-52 ft., Cockfield "B"-Eocene, 101 bbl. oil.

PINEHURST, WEST—Montgomery, July; Superior Oil Co. 1 L. N. Kramer et al, Edward Taylor Survey, A-554, TD 11,377 ft., 10,896-915 ft., Wilcox, 25 bbl. condensate.

RICHMOND, NORTH—Fort Bend, January; Jack W. Frazier and Humble Oil & Refining Co. 1 Will Hartlage, John Frederick Survey, A-172, TD 8,005 ft., 7,391-93 ft. in Yegua, 190 bbl. oil.

ROSE CITY—Orange, February; John W. Mecom 1 East Beaumont Townsite Co., W. Stephenson League, A-23, TD 9,051 ft., Hackberry, 8,122-28 ft., 279 bbl. oil. 5 wells at year end.

SAN FELIPE—Austin, January; Magnolia Petroleum Corp. 1 Joe Vitek, S. F. Austin League, A-7, TD 8,202 ft., 8,069-81 ft., Cook Mountain-Eocene, 142 bbl. oil,

WEINHEIMER—Wharton, January; P. L. D. Well Service Co. 1 E. A. Weinheimer, Lyman Conkrite Survey, TD 5,430 ft., dually completed, 5,217-23 ft., 25 bbl. condensate and 2,000,000 cu. ft. gas; 5,102-04 ft., 10 bbl. condensate and 2,250,000 cu. ft. gas.

UNNAMED—Brazoria, June; Skelly Oil Co. 1 E. O. Koutnik, W. D. C. Hall Survey, A-69, TD 9,340 ft., 7,528-28½ ft., Frio, 32 bbl. condensate and 738,000 cu. ft. gas.

UNNAMED—Brazoria, September; Amerada Petroleum Corp. C-1 State Lease 34,316, State Tract 8, Bastrop Bay, TD 8,485 ft., 7,122-36 ft., 17 bbl. condensate.

UNNAMED — Brazoria, November; Floyd L. Karsten 1 V. S. Huffman, J. S. Talmage, Section 68, A-561, TD 8,235 ft., sand, 7,614-16 ft., 126 bbl. oil.

UNNAMED—Colorado, September; C. N. Housh-American Republics Corp. 1 Pearl Wooten, James Haddon League, A-27, TD 10,201 ft., Wilcox, 8,512-40 ft., 50 bbl. condensate.

UNNAMED — Fayette, July; Continental Oil Co. 1 Alfred F. Stinehauser, Almon Weaver A-335, TD 2,326 ft., 66 bbl. oil. Aenim-Eocene, 2,317-26 ft.

UNNAMED—Fayette, August; Armstrong & Sutton Drilling Co. 1 F. A. Kremel, Samuel Millet League, A-70, TD 1,159 ft., 1,129-59 ft., Reklaw, 20 bbl. oil.

UNNAMED—Hardin, June; American Republics Corp. 1 O. C. Nelson League, O. C. Nelson League, A-40, TD 8,000 ft., 7,627-32 ft., Yegua, 50 bbl. condensate and 12,000,000 cu. ft. gas.

UNNAMED — Hardin, October; J. K. Hughes Oil Co. 1 A. N. Blackwell, S. R. Brown Survey, A-542, TD 8,320 ft., sand, 7,173-75 ft., 53 bbl. oil.

UNNAMED—Harris, March; Sun Oil Co. 1 Williamson, H&TC Survey 19, A-428, TD 7,765 ft., 6,486-89 ft., Yegua, 20 bbl. oil.

UNNAMED—Harris, October; The Texas Co. 1 Mrs. E. Hope Norris, I&GN RR Survey, A-1,448, TD 8,009 ft., 7,576-86 ft., 7,000,-000 cu. ft. gas.

UNNAMED—Jefferson, March; Meredith, Clegg & Hunt et al 1 Mrs. Euphemia Burrell, John F. French Survey, Block 7, TD 8,400 ft., 8,282-95 ft., Frio, 38 bbl. condensate and 55,000,000 cu. ft. gas.

UNNAMED — Jefferson, September; Sun Oil Co. 1 Aubey, John J. French Survey, A-23, TD 8,600 ft., sand, 8,370-78 ft., 27,000,-000 cu. ft. gas plus ungaged amount of condensate.

UNNAMED—Liberty, May; William Herbert Hunt trust estate 1 Mrs. M. P. Ebie, GS&SFRR Survey 17, A-456, TD 8,052 ft., 7,930-38 ft., 42,000,000 cu. ft. gas.

UNNAMED—Liberty, September; William Herbert Hunt trust estate 1 E. W. Boyt, W. E. Fairchild Survey, A-656, TD 8,005 ft., 7,884-92 ft., Frio, no gage on gas and condensate.

UNNAMED—Newton, August; Callery & Hurt 1-A T. E. Inman et al, Willis Donaho Survey, A-91, TD 12,215 ft., 10,650-70 ft., 296 bbl. condensate and 1,500,000 cu. ft. gas.

UNNAMED—Newton, November; Earl C. Hankamer et al 1 H. L. Brown, James Henderson Survey, A-180, TD 7,740 ft., Frio, 7,198-226 ft., 34,500,000 cu. ft. gas plus ungaged amount of condensate.

UNNAMED—San Jacinto, May; G. S. Hammonds 1 Sue Hill, Vital Flores League, A-14, TD 4,396 ft., 4,381-87 ft., 4 bbl. oil.

UNNAMED—Washington, December; Edwin L. Cox and Jake L. Hamon 1 Bessie T. Hughes, E. R. Miller and W. R. Munson leagues, TD 9,712 ft., Wilcox, 9,365-69 ft., 241 bbl. oil.

UNNAMED—Wharton, May; J. B. Ferguson and Peter N. Petkas 1 Mrnustik et al unit, B. B. Pearce Survey, A-318, TD 5,344 ft., 5,043-47 ft., 10,000,000 cu. ft. gas.

UNNAMED—Wharton, July; Commercial Petroleum & Transport Co. 1 John Kulcak, ETRR Survey 57, A-122, TD 6,796 ft., 6,562-68 ft., Marginulina, 172 bbl. oil.

UNNAMED—Wharton, June; Butcher-Arthur 1 Albert Thomas, John Bridges Survey, A-73, TD 5,658 ft., 4,401-07 ft., 22,000,000 cu. ft. gas.

NEW PAYS

BATSON—Hardin, December; L. D. Cain 1 Marrs McLean, F. H. Green Survey, A-24, TD 6,314 ft., sand 6,203-34 ft., 157 bbl. oil.

BERNARD, WEST—Wharton, November; Tide Water Associated Oil Co. 1 B. G. Womack, John F. Stevenson Survey, A-415, TD 7,825 ft., sand 7,086-98 ft., 14,000,000 cu. ft. gas plus ungaged amount of condensate.

BOLING DOME—Fort Bend, May; Callery & Hurt 2 John Kasparek, Simon & Miller League 2, TD 3,598 ft., Frio, 3,589-98 ft., 128 bbl. oil. 7 wells at year end.

CLAY CREEK — Washington, January; Alaska Steamship Co. et al 1 Ida Rosenbaum, Nestor Clay Survey, A-209, TD 5,012 ft., Lower Wilcox 5,009-10 ft., 183 bbl. oil. 8 wells at year end.

COLLINS LAKE — Brazoria, November; McCarthy Oil & Gas Corp. 1 M. J. Jamison estate, C. Smith League, TD 11,475 ft., Hackberry 11,424-75 ft., 95,000,000 cu. ft. gas.

DUNBURY—Brazoria, September; Humble Oil & Refining Co. 1 Danbury gas unit, Henry Austin League 5, A-13, TD 11,245 ft., perf. 9,275-96 ft., Frio, 23,000,000 cu. ft. gas, no gage on condensate.

FRED—Tyler, December; Stanolind Oil & Gas Co. 5 James F. Parker et al, George T. Collins League, TD 9,005 ft., sand 8,532-42 ft., 80 bbl. oil.

FRELSBURG—Colorado, April; Midstates Oil Corp. 1 Suchadoll, F. A. Zimmerchield Survey, A-629, dual completion, TD 9,600 ft., sand 9,276-86 ft., 86 bbl. condensate. Wilcox, 8,120-32 ft. (new pay), 61 bbl. oil.

GILLOCK, SOUTH — Galveston, March; Superior Oil Co. 1 fee, John W. Lytle Survey, A-17, TD 11,582 ft., Frio 9,035-53 ft., 254 bbl. oil. 7 wells at year end.

GOBBLER CREEK—Wharton, November; M. T. Grubb et al 1 Weinheimer, Lyman Conkrite Survey, A-16, TD 5,240 ft., sand, 4,227-30 ft., 115 bbl. oil. 2 wells at year end.

GOOSE CREEK—Harris, May; Production Service Oil Corp. et al 1 Tavary, Harvey Whiting Survey, Lot 9, Pelly acres, City of Bayton, TD 5,207 ft., sand 4,258-68 ft., 81 bbl. oil. 24 wells at year end.

HILJE, SOUTH—Wharton, October; Sam G. Harrison 1 Niels Carlsen, Morris & Cummings Survey, A-277, TD 6,015 ft., Marginulina 5,236-41 ft., 121 bbl. oil. 2 wells at year end.

HITCHCOCK—Galveston, August; Stewart Petroleum Co. State-Highland Bayou, John D. Moore League, TD 6,800 ft., Miocene 5,304-10 ft., 40 bbl. oil.

HULL—Liberty, February; The Texas Co. 7 Armelin, S. Wickliff Survey, A-270, dual completion, TD 7,504 ft., new pay Yegua 6,593-97 ft., 165 bbl.; sand, 6,770-84 ft., 260 bbl. oil. 36 wells at year end.

HULL—Liberty, April; The Texas Co. 8 Armelin fee, S. Wickliff Survey, TD 7,168 ft., new pay Yegua, 7,005-32 ft., 190 bbl., sand 6,448-54 ft., 130 bbl. oil. 10 wells at year end.

HULL—Liberty, October; John W. Mecom 1 E. F. Failor, W. S. Swilley Survey 188, A-717, TD 7,695 ft., sand 7,678-90 ft., 329 bbl. oil. 6 wells at year end.

LIBERTY, SOUTH—Liberty, August; L. M. Josey et al 3 Trinity River Bed-State, M. G. White League, TD 7,717 ft., Cook Mountain 7,200-384 ft., 240 bbl. oil. 2 wells at year end.

LIBERTY, SOUTH—Liberty, March; Stanolind Oil & Gas Co. 1 Frank Abshier, M. G. White League, TD 6,950 ft., egua 6,836-54 ft., 155 oil. 7 wells at year end.

LIBERTY, SOUTH — Liberty, January; Cities Production Corp. E-8 Nonie O'Brien, M. G. White Survey, TD 7,145 ft., new pay Yegua 6,626-702 ft., 257 bbl. oil; new pay Yegua 6,566-600 ft., 128 bbl. oil. 7 wells at year end.

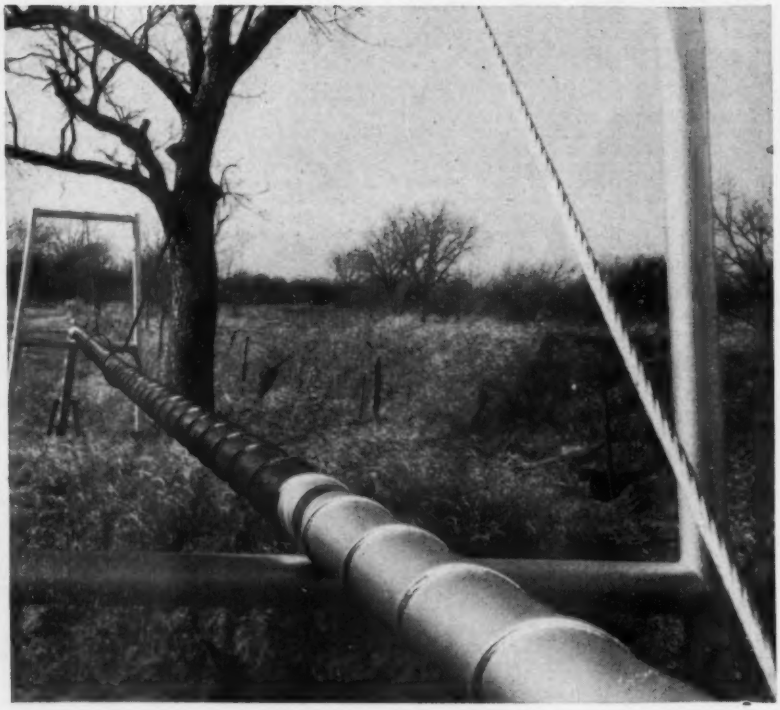
LIBERTY, SOUTH—Liberty, March; L. M. Josey et al 17 Joseph Mitchell, M. G. White Survey, TD 6,508 ft., Lower Yegua 5-EY 5,880-914 ft., 232 bbl. oil. 8 wells at year end.

LIBERTY, SOUTH—Liberty, June; Texas State Drilling Co. 4 Duessen, David Minchey Survey, TD 3,622 ft., Frio 3,396-406 ft., 115 bbl. oil. 5 wells at year end.

LISSIE—Wharton, March; Salt Dome Oil Corp. et al 1 Winnie M. Poole, GH&HRR Survey 25, A-156, TD 7,171 ft., Cook Mountain 6,370-78 ft., 39 bbl. oil.

LIVINGSTON—Polk, August; Humble Oil & Refining Co. 1 D. A. Honaker, A. Viesca Survey, A-77, TD 6,744 ft., Jackson 3,748-60 ft., 9 bbl. oil.

MIDFIELDS—Matagorda, August; Sun Oil Co. 2 St. Louis Brownsville Corp., I&GNRR Co. Survey 2, TD 11,106 ft., Lower Frio



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10,446-52 ft., 223 bbl. oil. 2 wells at year end.

NASH—Brazoria, August; Dan J. Harrison, Jr., 3 Belle Wisdom Estate, H. N. Cleveland Survey, TD 4,114 ft., Miocene 4,108½-13 ft., 115 bbl. oil.

NASH—Brazoria, October; Dan J. Harrison, Jr., 5 Belle Wisdom Estate, H. N. Cleveland Survey, A-166, TD 4,744 ft., Anahuac lime 4,418-39 ft., 85 bbl. oil.

NASH—Brazoria, November; Dan J. Harrison, Jr., 6 Belle Wisdom estate, H. M. Cleveland Survey, TD 4,304 ft., sand 4,281-300 ft., 109 bbl. oil.

NEW ULM—Austin, April; McCarthy Oil & Gas Corp. 1 Herman Blezinger et al, Felix Wright heirs Survey, A-314, TD 9,461 ft., sand 8,978-88 ft., 271 bbl.; dual completion, new sand Wilcox 9,325-40 ft., 150 bbl. condensate. 4 wells at year end.

NEW ULM—Austin, August; Oil Drilling, Inc., 1 Selma Holzman, A. Kuykendall Survey, dual completion, TD 10,111 ft., 9,438-47 ft., 206 bbl., Wilcox 9,638-55 ft., 263 bbl. oil. 2 wells at year end.

NEW ULM—Austin, February; McCarthy Oil & Gas Corp. 1 Franciska Lesikar et al, Adam Kuykendall Survey, A-243, TD 10,312 ft., Wilcox 9,096-180 ft., 227 bbl. oil. 3 wells at year end.

NEW ULM—Austin, November; Wood Petroleum Co. 1 Domesle, Thomas Hill Survey, TD 10,826 ft., Wilcox 9,560-601 ft., 101 bbl., Wilcox 9,781-809 ft., 200 bbl. condensate. 3 wells at year end.

NEWTON (OLD SALEM)—Newton. February; The Texas Co. 1 Newton County Lumber Co., Derrough unit. J. D. Ray League, A-13, TD 11,500 ft., Wilcox 10,965-11,004 ft., 140 bbl. oil. 2 wells at year end.

NONA MILLS—Hardin, June; L. M. Josey 1 F. C. Eason and L. R. Eason. J. J. Allums Survey, Block 12, Kountze townsite, TD 8,550 ft., sand 7,132-56 ft., 35 bbl. condensate.

ORANGE—Orange, August; Wayside Oil Co.-Paul Cormier 1 Gulf Lee Hager fee, S. M. Luce Survey, A-252, TD 6,319 ft., Miocene, 127 bbl. oil. 3 wells at year end.

OYSTER BAYOU—Chambers, July; Sun Oil Co. 31 Felix Jackson, T&NO Survey 124, TD 10,200 ft., Frio 8,408-21 ft., 38,000,000 cu. ft. gas.

PORT NECHES—Orange, March; The Texas Co. 4 Polk-Kuhn-Glass, T. J. Notgrass Survey, TD 3,075 ft., Frio 6,023-27 ft., 164 bbl. oil. 2 wells at year end.

PORT NECHES—Orange, September; The Texas Co. 30 Harry J. Kuhn, Mary A. E. Hall 2 Survey, A-431, TD 6,415 ft., Oligocene, 4,072-78 ft., 126 bbl. oil.

SARGENT—Matagorda, February; H. A. Potter et al, 1 Ritta Freeman, Thomas McCoy and D. Deckro Survey, TD 6,705 ft., sand 5,058-62 ft., 32,500,000 cu. ft. gas.

SHERIDAN—Colorado, July; Shell Oil Co. 18 Plow Realty Co., Francis Mayhar Survey, A-400, TD 4,615 ft., Yegua 5,160-68 ft., 125 bbl. oil.

THOMPSON, SOUTH—Fort Bend, March; Cecil Hagen 2 J. H. P. Davis, Robert Peebles Survey, TD 5,568 ft., Miocene 4,325-35 ft., 114 bbl. oil. 2 wells at year end.

TIDEHAVEN (LIVE OAK)—Matagorda, January; G. S. Hinkle 1 Mrs. Grace P. Heffelfinger, J. Tilley Survey, A-93, TD 8,830 ft., Frio 8,569-75 ft., 108 bbl. oil. 6 wells at year end.

TIDEHAVEN—Matagorda, May; Hinkle Drilling Co. 1 Mrs. Abel B. Pierce et al, J. Tilley Survey, A-93, TD 8,907 ft., Frio 8,896-903 ft., 193 bbl. oil. 3 wells at year end.

SOUTHWEST TEXAS

District 4

NEW POOLS

ALTA VERDE—Brooks, February; H. L. Hawkins 1 Singer Estate, C&MRR Survey 436, TD 4,273 ft., lower Vicksburg, 4,003-28 ft., 114 bbl. oil, 2 wells at year end.

ATLEE—Duval, May; R. H. Smith, Wm. F. Carr and W. E. Fox, Tr., 1 Atlee Parr, tracts 1 and 2, W. E. Price C. & G. Subd., San Andres grant, dual completion, TD 5,010 ft., Hockley, 5,002-08 ft., 127 bbl. oil., Hockley 4,924-30 ft., 105 bbl. oil. 4 wells at year end.

BILLINGS—Webb, August; O. W. Killam 2 Floyd Billings, CCSD&RGNGRR Survey 39, TD 2,405 ft., sand, 2,393-405 ft., 65 bbl. oil. 5 wells at year end.

BRUJA VIEJA—Jim Hogg, August; Pontiac Refining Corp. 1 Y. Vela Cuellar, W. M. Clay Survey 576, A-162, TD 1,716 ft., 5 bbl. oil, sand 1,775-61 ft. 2 wells at year end.

CANELO.—Kleberg, February; Humble Oil & Refining Co. 1 King Ranch-Canelo, CCSD&RGNGRR Survey 307, A-64, TD 11,839 ft., sand, 5,210-21 ft., 8 bbl. oil. 2 wells at year end.

CANO—Duval, January; The Texas Co. 1 Duval County Ranch Co. O/A NCT-3, Guadalupe Cano Survey 584, A-1900, TD 2,700 ft., Mirando, 2,421-26 ft., oil well. 2 wells at year end.

CLARKWOOD, SOUTH—Nueces, June; The Chicago Corp., Sullivan & Garnett 1 Jonas Weil, J. H. Gallagher Survey 318, A-986, TD 10,205 ft., sand, 9,088-112 ft., 20,000,000 cu. ft. gas.

DUBOISE—Jim Wells, January; William Hamm, Jr., 1 Myra L. Duboise, J. G. de la Garza Montemayor Casa Blanca grant, A-296, TD 5,625 ft., sand 4,004-14 ft., 5,100,000 cu. ft. gas.

CUNNINGHAM—Jim Hogg, June; Pontiac Refining Co. 1 Roy Yeager, W. R. Newman Survey 165, TD 3,207 ft., Jackson, (upper Loma Novia), 3,089-99 ft., 5 bbl. oil. 2 wells at year end.

ED LASATER—Jim Hogg, January; Gorman & DeLange et al, 2 Mary M. Lasater Estate, Sam Honey Survey 270, TD 2,572 ft., Mirando, 2,043-67 ft., 16,000,000 cu. ft. gas. (This well is original discovery for the field. The 3 Mary Lasater was completed immediately thereafter as an oiler).

ED LASATER—Jim Hogg, January; Gorman & DeLange et al, 3 Mary M. Lasater Estate, Sam Honey Survey 270, TD 2,215 ft., Mirando, (Jackson), 2,094-96 ft., 21 bbl. oil. 13 wells at year end.

EL EBANITO—Starr, January; Baldridge & King, Inc., 1 T. B. Slick Estate, El Panal grant, TD 7,206 ft., Bloomberg, (Vicksburg) 7,080-7,104 ft., 10,300 cu. ft. gas.

FORTY NINE—Duval, January; The Texas Co. 1 Duval County Ranch O/A NCT-2, GB&CNGRR Survey 49, A-715, TD 2,622 ft., Cole, 1,574-86 ft., 19 bbl. oil. 2 wells at year end.

GRUY—Brooks, May; Argo Oil Corp. C-1 Joseph Gruy Trust, J. G. Reynolds Survey 152, TD 3,810 ft., Jackson, 2,610-26 ft., 52 bbl. oil. 5 wells at year end.

HARVEY—San Patricio, November; La-Gloria Corp. 1 J. H. Harvey, Block 9, Rincon Road Subd., TD 9,976 ft., sand, 8,208-10 ft., 184 bbl. oil, sand 8,839-60 ft., 23,000,000 cu. ft. gas.

HELLEN—Jim Hogg, July; Killam & Hurd, Inc., 2 C. W. Hellen, Duval County Lands Survey 150, TD 3,069 ft., Jackson, 3,064-69 ft., 69 bbl. oil. 5 wells at year end.

HOFFMAN, EAST—Duval, March; J. W. Cosner 2 W. K. Hoffman, Survey 116, A-1272, TD 2,082 ft., basal Frio-Vicksburg, 2,038-62 ft., 64 bbl. oil.

JULIAN—Kenedy, April; Humble Oil & Refining Co. 1 Santa Fe Ranch-Julian Pasture, San Salvador Del Tule grant, TD 12,458 ft., sand, 8,270-83 ft., 5,100,000 cu. ft. gas.

JURICA—Nueces, June; Train-Weisman 1 Ed Jurica, Lot 23, Survey 15, TD 4,856 ft., sand, 4,732-38 ft., 20 bbl. oil.

LOU ELLA—Jim Wells, January; Daubert, Achning & Quin 1 Mrs. Lou Ella Wade, Casa Blanca grant, TD 5,026 ft., Vicksburg, 5,022-24 ft., 133 bbl. oil. 7 wells at year end.

MARKS—Starr, October; Ben D. Marks, trustee, 1 Downs Royalty Corp., Block 42, Beer & Coffey Subd., El Javali grant, A-77, TD 2,130 ft., Colorado, (Yegua) 2,124-30 ft., 111 bbl. oil. 2 wells at year end.

MOMITAS—Jim Hogg, June; Humble Oil & Refining Co. 1 Eduardo Izaguirre, Tract 1, Agua Nueva de Abajo grant, TD 7,500 ft., sand, 7,380-7,400 ft., 2,000,000 cu. ft. gas.

MUSTANG ISLAND—Nueces, January; Atlantic Refining Co. 1 Sam E. Wilson, William Little Survey 594, A-210, TD 8,478 ft., sand, 9,946-56 ft., 19 bbl. condensate. 3 wells at year end.

NUECES BAY, WEST—Nueces, October; Phillips Petroleum Co. 1 "Frio" (State of Texas)-State submerged lands, Tract 686 Nueces Bay, TD 10,008 ft., sand, 8,370-80 ft., 262 bbl. oil.

ORLEE—Duval, January; Orlee Oil Co. 1 L. Lopez, J. Poitevent Survey 455, A-1315, TD 1,713 ft., sand 1,699-1,702 ft., 25 bbl. oil. 4 wells at year end.

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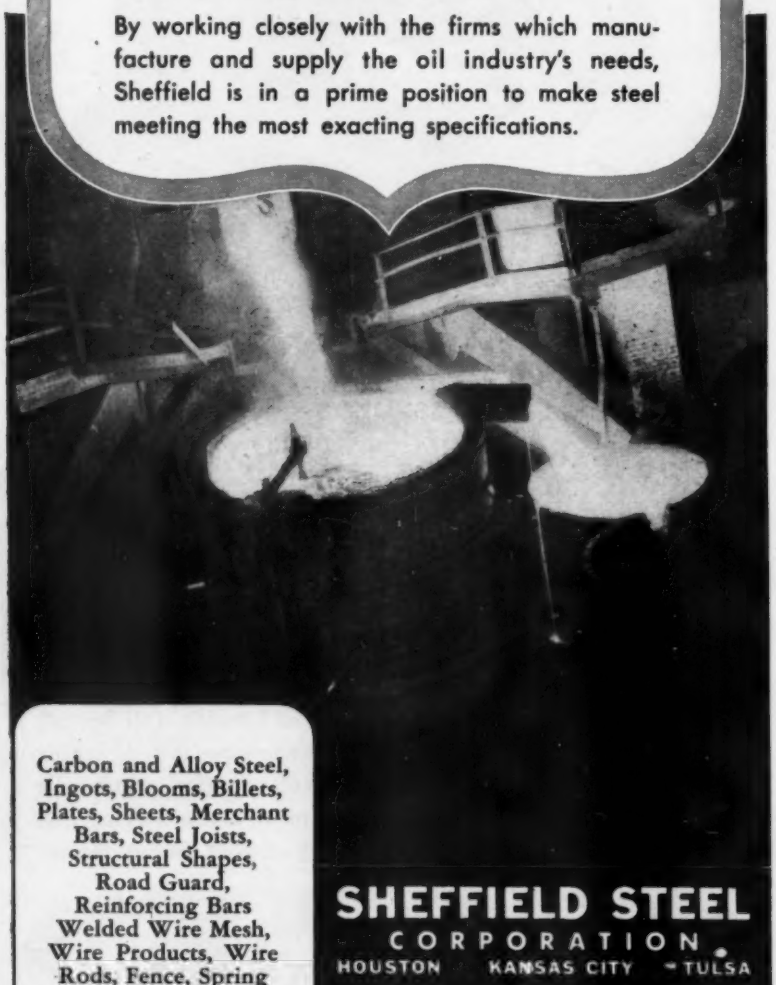

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PALO BLANCO--Brooks, January; I. K. Howeth et al, 2 Kathleen Locker Alexander, fourth addition Realitos Subd., Los Mogueyes de Palo Blanco grant, TD 4,816 ft., Sejita, 4,781-4,815 ft., 60 bbl. oil. 9 wells at year end.

PORTILLO—San Patricio, February; Superior Oil Co. 1 Minnie S. Welder, Section 24, Welder Ranch Subd., TD 8,822 ft., Frio, 8,122-32 ft., 507 bbl., dual completion, 7,392-400 ft., 338 bbl. oil. 9 wells at year end.

RAND MORGAN — Jim Wells, January; Rand Morgan R-1 fee, Block 5, Ragland Fram, TD 5,775 ft., sand, 5,363-82 ft., 30,000,000 cu. ft. gas.

RUDCO—San Patricio, November; Rudco Oil & Gas Co. 1 Yturria Land & Livestock Co., Porcion 100, TD 6,011 ft., sand 4,092-4,102 ft., 84 bbl. oil.

QUITERIA—Brooks, September; Humble Oil & Refining Co. 1 Robert J. Kleberg, Jr., trustee, Quiteria pasture, TD 9,250 ft., sand, 8,282-87 ft., gas well, no gage.

ROSALIA, SOUTH—Duval, March; Cox & Hamon and John F. Camp & Sons A-2 Driscoll, Block 54, Santa Rosalia grant, A-476, TD 3,365 ft., Jackson, 3,356-59 ft., 96 bbl. oil. 5 wells at year end.

SEVENTY-SIX, SOUTH — Duval, March; The Texas Co. 1 Duval County Ranch NCT-54, Gonzalo Garza Survey 76, TD 2,548 ft., Chernosky, (Jackson) 1,710-20 ft., 71 bbl. oil. 13 wells at year end.

SINTON, EAST — San Patricio, August; Superior Oil Co. 1 J. F. Odem et al, John Henderson Survey, A-156, TD 8,344 ft., sand, 6,650-60 ft., 122 bbl. oil.

TIGER — Duval, April; Tiger Minerals, Inc., 2-A W. R. Peters Estate, CB&CNRR Survey 39, A-717, TD 1,734 ft., sand, 1,733-34 ft., 20 bbl. oil.

TOM GRAHAM, WEST—Jim Wells, May; W. B. Osborn 1 Mrs. Mittie Holshouser, Farm Block 96, TD 5,320 ft., Seiler, 4,996-5,011 ft., 3,200,000 cu. ft. gas.

TRIPLE A—San Patricio, June; J. S. and R. H. Abercrombie and Atlantic Refining Co. 1 A. E. Nelson, Juan Garcia Survey, A-129, TD 7,471 ft., Frio, 6,665-69 ft., 163 bbl. oil.

VIBORAS—Brooks, August; Humble Oil & Refining Co. 4 Robert J. Kleberg, Jr., Trustee-Viboras Pasture, TMRR Survey, TD 9,008 ft., sand, 7,578-86 ft., 105 bbl. oil. 2 wells at year end.

VIRGINIA — Aransas, February; Union Producing Co. 1 Virginia H. Tatton, John Durst Survey, A-51, TD 11,515 ft., sand 10,505-20 ft., 229 bbl. condensate.

WELDER-DURHAM—San Patricio, October; Seaboard Oil Co. of Delaware 1 R. H. Welder, Section 38, Welder Ranch Subd., TD 8,273 ft., sand, 7,136-40 ft., 93 bbl. oil. 2 wells at year end.

WITHERS—Webb, October; Seaboard Oil Co. of Delaware 1 Mary K. Withers, BS&F Survey 40, Cert. 1,598, TD 6,725 ft., Lower Wilcox, 6,500-10 ft., 20 bbl. condensate plus 21,600,000 cu. ft. of gas.

UNNAMED—Brooks, January; J. R. Frankel A-1 J. L. Cage, TEX-MEX RR Survey 711 TD 8,005 ft., sand, 7,804-09 ft., 34,000,000 cu. ft. gas.

UNNAMED—Duval, January; Luling Oil & Gas Co. 1 Florencia Garcia, M. G. Perez Survey 412, TD 3,310 ft., sand, 3,266-82 ft., 2,280,000 cu. ft. gas.

UNNAMED—Duval, May; Ralph E. Fair and Woodward & Co. 1 C. W. Hahl, E. Rodriquez Survey 56, A-1,881, TD 7,610 ft., sand, 7,575-610 ft., 1,990,000 cu. ft. gas.

UNNAMED—Jim Wells, June; Hickok & Reynolds Roy. Co. 1 Reynolds & Richardson, W. O. Stamples Survey 210, A-439, TD 6,100 ft., sand, 3,927-33 ft., 11,000,000 cu. ft. gas.

UNNAMED—Jim Wells, May; The Texas Co. 1 Ed C. Adams, Juan Hernandez Survey 10, A-204, TD 4,105 ft., sand, 2,500-10 ft., 8,300,000 cu. ft. gas.

UNNAMED—Jim Wells, January; W. B. Osborn 1 H. M. Chiles, La Vaca grant, TD 5,345 ft., sand, 4,978-96 ft., 6,800,000 cu. ft. gas.

UNNAMED—Kleberg, February; Humble Oil & Refining Co. G-3 King Ranch-East Laureles, Tract 123, Rincon de Los Laureles farm tracts, TD 9,992 ft., sand, 6,030-50 ft., 90,000,000 cu. ft. gas and ungaged amount of condensate.

UNNAMED—Nueces, July; Phillips Petroleum Co. 1 Mrs. Elena S. Kenedy et al, P.

Hinojosa Survey 422, TD 9,010 ft., sand, 6,198-7,202 ft., 3,000,000 cu. ft. gas.

UNNAMED—Nueces, June; Atlantic Refining Co. A-1 W. F. L. Lehman, Ramon de Ynojosa Survey, A-411, TD 11,005 ft., sand, 9,630-45 ft., and 9,655-75 ft., 2,360,000 cu. ft. gas.

UNNAMED—Nueces, November; Eastern States Petroleum Co. 1 Adolph Till et ux, Section 161, F. Z. Bishop Subd., Palo Blanco grant, TD 7,815 ft., sand 7,241-50 ft., 14,000,000 cu. ft. gas plus 20 bbl. condensate per M.c.f. gas.

UNNAMED — Nueces, February; Curtis Singleton Drilling Co. and James R. Dougherty 1 James R. Dougherty fee, Block 7, Bluntzer Partition, Casa Blanca grant, TD 5,423 ft., sand, 5,375-77 ft., 13,000,000 cu. ft. gas, ungaged amount of condensate.

UNNAMED—Nueces, August; Shell Oil Co. 1 State Tract 342, Red Fish Bay, TD 9,803 ft., sand, 7,629-40 ft., 53 bbl. condensate.

UNNAMED—San Patricio, October; Union Oil Co. of California 2 R. H. Welder, H. O'Neill Survey, A-210, TD 7,995 ft., sand, 4,124-26 ft., 40 bbl. oil.

UNNAMED—San Patricio, June; Plymouth Oil Co. G-1 R. H. Welder, R. H. Welder Ranch Subd., TD 8,279 ft., sand, 6,994-7,005 ft., 202,000 cu. ft. gas.

UNNAMED—Starr, August; Hugh Kirkpatrick et al, 1 Eduvigas Alvares, Santa Teresa grant, TD 6,033 ft., sand, 4,590-4,625 ft., 20,000,000 cu. ft. gas.

UNNAMED—Webb, August; Magnolia Petroleum Co. 1 Lopez Estate, T&NORR Survey 139, TD 6,705 ft., PBTD 2,560 ft., sand, 1,409-18 ft., 8,400,000 cu. ft. gas.

UNNAMED—Zapata, March; J. C. McCabe 1 Cuellar Bros., TCRR Survey 245, TD 1,309 ft., sand, 1,146-50 ft., 2,000,000 cu. ft. gas.

UNNAMED—Zapata, April; C. C. Tedford et al, B-1 Cuellar Bros., TCRR Survey 245, Cert. 429, TD 1,340 ft., sand, 1,319-40 ft., 3 bbl. oil.

NEW PAYS

AMARGOSA—Jim Wells, September; George W. Graham et al., 1 Lester Moore, N. Gussett Survey 98, A-185, TD 7,020 ft., Yegua 5,986-92 ft., 69 bbl. oil, 2 wells at year end.

CANELO—Kleberg, March; Humble Oil & Refining Co. 2 King Ranch-Canelo, CCSD-&RGNGRR Survey 310, TD 8,823 ft., sand 6,621-37 ft., 112 bbl. oil, 2 wells at year end.

CEMENT—Nueces, January; Henshaw Bros. and O. R. Mitchell 1 H. R. Bryant, Section 45, Geo. H. Paul subdivision of Driscoll ranch, TD 6,702 ft., sand 6,196-6,220 ft., 16 bbl. oil.

CHAPMAN RANCH—Nueces, May; The Chicago Corp. 1 Chapman ranch, Section 44, Laureles farm tract, TD 7,750 ft., sand 7,366-74 ft., 53 bbl oil.

CHARAMOUSCA, NORTH—Duval, November; Dulaney Oil Co. 8 Duval County Ranch Co., CCSD&RGNG Survey 155, A-783, TD 2,093 ft., upper Rosenberg, 1,995-98 ft., 45 bbl. oil, 2 wells at year end.

CLARA DRISCOLL, SOUTH—Nueces, September; The Texas Co. 5 Hattie E. Flinn, Jose A. Cabosos Survey, A-63, Geo. H. Paul subdivision of Driscoll ranch, TD 6,505 ft., sand, 4,832-39 ft., 129 bbl. oil.

DONNA—Hidalgo, March; Sinclair Oil & Gas Co. 1 L. W. Shaffer, Lot 9, Block 16, Alamo Land & Sugar Co. subdivision, Porcion 72, TD 6,959 ft., Frio, 6,898-6,908 ft., 185 bbl. oil, 3 wells at year end.

DONNA—Hidalgo, March; Sinclair Oil & Gas Co. 1 Foran Unit, Section 15, Alamo Land & Sugar Co. subdivision, TD 8,560 ft., sand, 6,018-28 ft., 187 bbl. condensate.

DONNA—Hidalgo, November; Sinclair Oil & Gas Co. 1 Gomez Unit, Lot 8, Section 18, Alamo Land & Sugar Co. subdivision, TD 9,250 ft., Gomez, 6,428-35 ft., 247 bbl. oil.

ED LASATER—Jim Hogg, December; Gorman & DeLange et al., 20 Mary M. Lasater estate, William Key Survey, TD 2,451 ft., sand, 2,441-46 ft., 88 bbl. oil.

FROST—Starr, June; Sun Oil Co. A-2 A. Orive, Porcion 97, TD 4,158 ft., sand, 4,145½-47 ft., 34 bbl. oil.

KELSEY-DEEP—Brooks, March; Humble Oil & Refining Co. 143 McGill Brothers, LaBlanca grant, TD 8,502 ft., upper Vicksburg, 6,308-18 ft., 70 bbl. oil, 11 wells at year end.

LA REFORMA—Hidalgo, October; The Chicago Corp. 2 Theresa Barrera, Share 7, San Jose grant, perf. (Reservoir F) 6,321-39 ft., 2,450,000 cu. ft. gas.

LA SAL VIEJA—Willacy, April; G. L. Reasor 1 Dale Johnston et al., Lot 11, Block 29, Harding-Lindeahl subdivision, TD 8,591 ft., sand, 7,010-20 ft., 49 bbl. oil, 6 wells at year end.

LONDON GIN—Nueces, January; Barnsdall Oil Co. 4 C. N. Cooke, Block 1, Jones subdivision of Gallagher ranch, TD 5,775 ft., sand, 4,834-37 ft., 4,400,000 cu. ft. gas.

MARIPOSA—Brooks, August; Frank W. Michaux and Sterling Oil & Refining Co. 1 D. J. Sullivan, Loma Blanca grant, TD 9,003 ft., sand, 6,543-52 ft., 9,900,000 cu. ft. gas.

McALLEN—Hidalgo, November; Taylor Refining Co. and Mayfair Minerals, Inc., 1 Pearl Keirn Unit, Lot 12, Block 7, Hidalgo Canal subdivision, Porcion 64, TD 10,270 ft., sand, 9,010-9,375 ft. 15,000,000 cu. ft. gas plus 10 bbl. condensate per M.c.f. gas, 2 wells at year end.

MOCA—Webb, January; H. R. Smith 1 Duval County Ranch Co., Section 3, Block 21, Zapata County School Land Survey 3, A-1915, TD 1,960 ft., Yegua, 1,689-95 ft., 1,800,000 cu. ft. gas.

MOCA—Webb, January; H. R. Smith 2 Duval County Ranch Co., Block 21, Zapata County School Land Survey, TD 2,185 ft., Yegua, 2,151-55 ft., 4,200,000 cu. ft. gas.

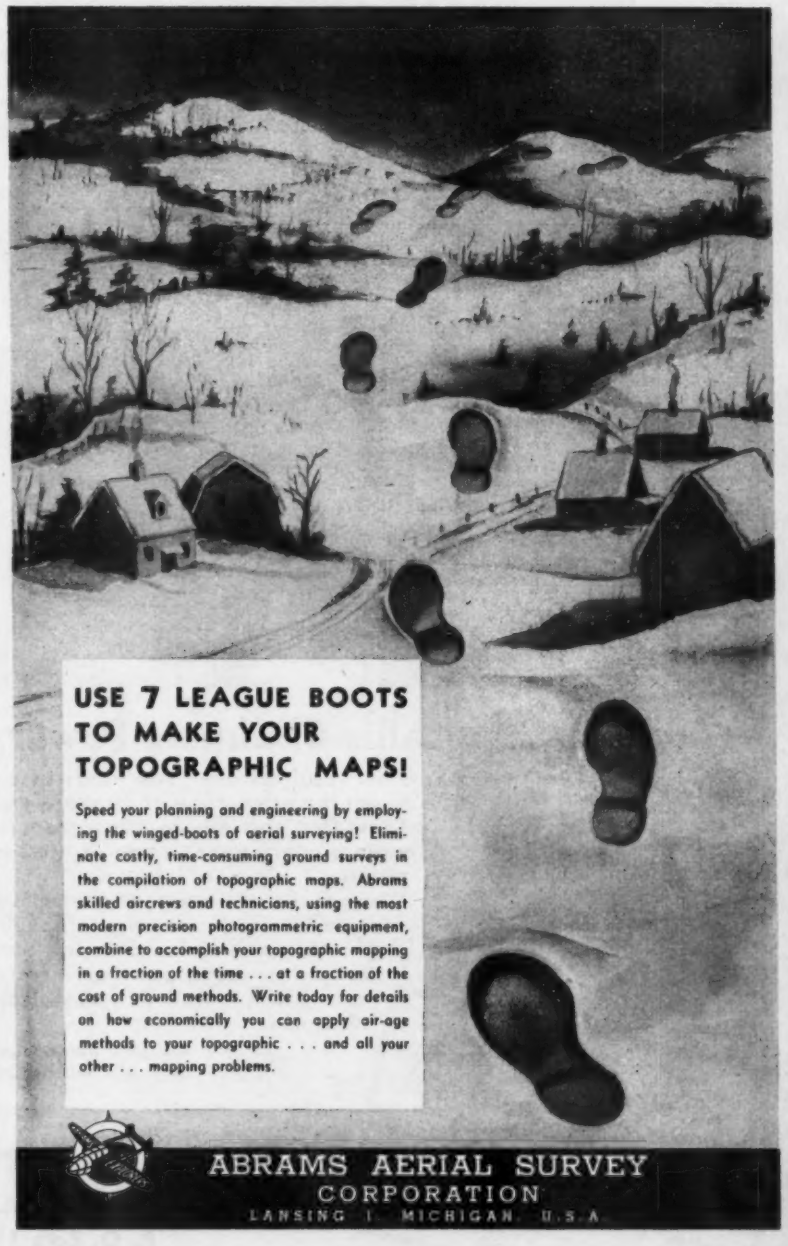
MUD FLATS—Aransas, January; Geo. W. Graham-Ryan, Hays & Burke 1 D. W. Grant, D. C. Barnett Survey, A-321, TD wells at year end.

MUSTANG ISLAND—Nueces, February; The Atlantic Refining Co. 1 State Tract 409, Corpus Christi Bay, TD 8,000 ft., sand, 7,311-21 ft., 240 bbl. oil, 11 wells at year end.

NICHOLSON—Webb, April; Humble Oil & Refining Co. 3 W. R. Nicholson, BS&F Survey 986, TD 8,005 ft., Wilcox, 6,050-55 ft., 39 bbl. oil.

MAGNOLIA CITY, SOUTH—Jim Wells, January; Frank W. Michaux 2 Virgil A. Bergh Trust, Jose Pacheco Survey, A-337, TD 5,467 ft., sand, 3,433-60 ft., 26,000,000 cu. ft. gas.

SUN, NORTH—Starr, September; Sun Oil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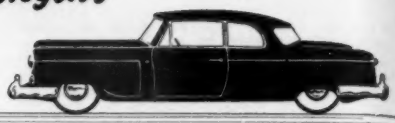

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Co. 2 S. Rodriquez, Santa Teresa and La Sal Colorado grant, TD 8,005 ft., two pays, C-2 (Olig.) 4,958-65 ft., 118 bbl., Garza, (Olig.) 4,717-24 ft., 44 bbl. oil.

PALANGANA—Duval, August; Crescent Oil Co. 1 Cain and Smith, GH&H Survey 8, A-249, TD 452 ft., sand 444-52 ft., 25 bbl. oil.

PALO BLANCO—Brooks, November; Howeth & Mason M-3 Kathleen Jones Alexander, Los Megueyes de Palo Blanco grant, TD 4,746 ft., first Sejita, 4,716-28 ft., 136 bbl. oil, 3 wells at year end.

PORTILLA—San Patricio, May; The Superior Oil Co. 2 Minnie S. Welder, C. J. Francisco and E. Portilla Survey, A-25, TD 9,629 ft., Frio, 7,120-25 ft., 210 bbl. oil.

PORTILLA—San Patricio, June; Superior Oil Co. 7 Minnie S. Welder, C. J. Francisco and E. Portilla Survey, A-25, TD 8,850 ft., Frio, 7,416-21 ft., 261 bbl. oil, 13 wells at year end.

RACHAL—Brooks, March; Baldridge & King, Inc., 1 D. H. White, Share 7, partition of La Escantade and Encino Del Poza grant, TD 4,894 ft., sand, 4,366-76 ft., 137 bbl oil, 13 wells at year end.

RINCON—Starr, February; Continental Oil Co. E-12 T. B. Slick estate, Survey 537, TD 5,703 ft., sand, 5,409-21 ft., 204 bbl. oil, 25 wells at year end.

RINCON—Starr, March; Harry L. Martin 1 R. L. White,(Porcion 95, TD 5,510 ft., sand, 4,819½-25 ft., 164 bbl. oil, 25 wells at year end.

RIVERSIDE, EAST—Nueces, September; Newman Bros. Drilling Co. and Alaska Steamship Co. 3 J. A. Thompson. Nueces County Winter Vegetable Gardens, TD 6,608 ft., sand, 5,030-45 ft., 146 bbl. oil, 5 wells at year end.

ROWDEN, NORTH—Duval, October; Dale H. Rowden and C. W. Moulder 1 Weil-Colvin, BS&F Survey 567, TD 2,715 ft., sand, 1,730-41 ft., 43 bbl. oil.

SALT LAKE—Aransas, February; Renwar Oil Corp. 1 State Tract 105, Copano Bay, TD 7,933 ft., sand, 7,837-77 ft., 163 bbl. oil, 3 wells at year end.

SEELIGSON—Kleberg, July; Humble Oil & Refining Co. C-137 King Ranch-Seeligson, Alice G. King Survey 50, TD 5,735 ft., perf. Zone 12-B, 4,850-54 ft., 94 bbl. oil, 6 wells at year end.

SEELIGSON—Jim Wells, October; Magnolia Petroleum Co. A. A. Seeligson, Los Jaboncillos-A. Ramirez Survey, TD 7,002 ft., sand, 6,809-13 ft., 144 bbl. oil, 4 wells at year end.

SINTON—San Patricio, September; Billy Bridewell and W. G. Darsey, Jr., 1 S. J. Lewis, Farm Lot 32, M. J. de la Garza Survey, TD 5,312 ft., sand, 5,108-14 ft., 172 bbl. oil.

SINTON, WEST, SHALLOW—San Patricio, January; J. M. O'Melveny Production Co. 4 Montgomery, Lot 24, John Pollan subdivision, TD 3,496 ft., sand, 2,353-60 ft., 215 bbl. oil, 4 wells at year end.

SINTON, WEST, SHALLOW—San Patricio, April; Armstrong & Sutton 1 Roy Jackson et al., Lot 8, Orange Grove subdivision of John Pollan League, TD 2,480 ft., sand, 1,874-85 ft., 8 bbl. oil. 2 wells at year end.

SINTON, WEST, SHALLOW—San Patricio, August; Payne & Riggs 6 J. G. Moss, John Pollan League, TD 2,406 ft., sand, 2,039-43 ft., 114 bbl. oil, 2 wells at year end.

SINTON, WEST—San Patricio, June; Grace Oil Co. 6 Edward Trigg, Block 23, John Pollan League, TD 2,800 ft., sand, 2,189½-95 ft., 125 bbl. oil.

SINTON, WEST—San Patricio, October; Plymouth Oil Co. A-9 R. H. Welder, Section 74, E. H. Welder Ranch subdivision, De la Garza Survey, TD 7,202 ft., sand, 6,696-98 ft., 66 bbl. oil.

TIJERINA - CANALES - BLUCHER—Jim Wells, October; The Texas C. 57 H. C. De Tijernia, AB&M Survey 359, TD 7,350 ft., sand 6,920-30 ft., 266 bbl. oil.

TRIPLE A—San Patricio, August; J. S. & R. H. Abercrombie and Atlantic Refining Co. 1 L. E. Fite, Robert Saddler Survey, A-233, TD 7,455 ft., Frio, 7,148-50 ft., 111 bbl. oil, 3 wells at year end.

VIRGINIA—Aransas, September; Union Producing Co. 2 Virginia H. Tatton, John Durst Survey, A-51, TD 11,135 ft., sand, 10,993-11,008 ft., 321 bbl. oil.

EAST TEXAS
Districts 5 and 6

NEW POOLS

BOBBY JO—Smith, May; Bobby Manziel 1 John C. L. Campbell, R. Fletcher Survey, A-359. 2 miles south Tyler, Paluxy, 7,662-72 ft., 500 bbl. distillate, TD 8,001 ft. 2 wells at year end.

BRIDGES—Shelby, April; S. J. Carnes 1 Pickering Lumber Corp., 6 miles east Patroon, R. S. Forbes Survey, A-211, Fredericksburg lime, 3,667-73 ft., 31 bbl. oil, TD 3,760 ft. 2 wells at year end.

EARL LEE—Wood, January; Hollandsworth Oil Co. 1 George A. Schenewerk, William Fisher Survey, 1½ miles south Pine Mills field. Woodbine, 5,475-90 ft., 110 bbl. oil, TD 5,627 ft., 13 wells at year end.

ED HOWARD—Anderson, September; E. L. Howard and Cooper-Herring 1 Odell Clewis, A. Hendley Survey. 10 miles east Slocum, Blossom sand, 5,285-90 ft., 129 bbl. oil, TD 5,290 ft.

FORREST HILL—Wood, April; W. W. Wise 1 J. E. Brown. sub-Clarksville, 4,410-73 ft., 168 bbl. oil, TD 4,744 ft. 6 wells at year end.

HAM - GOSSETT - WOODBINE—Kaufman, September; Thomas D. Humphrey 1 N. E. Tharp, D. Cervantes Survey, A-79, 4 miles southeast Kemp. Woodbine, 3,603-12 ft., 99 bbl. oil, TD 3,648 ft.

JACKSONVILLE, NORTH—Cherokee, May; Union Production Co. 1 Saunders F. J. Anthony Survey, 8½ miles northeast Jacksonville, Woodbine, 4,313-23 ft., 105,000,000 cu. ft. gas plus distillate, TD 5,000 ft.

LOTT—Falls, September; C. E. Litteral 1 Cavitt, J. M. Graham Survey, 3 miles northeast Lott. Buda, 1,112-21 ft., 120 bbl. oil, TD 1,121 ft. 10 wells at year end.

PICKTON, SOUTHEAST—Hopkins, March; Magnolia Petroleum Co. 1 A. F. Payne, J. W. Poe and Ollen Odom Surveys, 2 miles southeast Pickton field, Bacon lime, 7,857-64 ft.. 162 bbl. distillate, TD 7,883 ft. 5 wells at year end.

SANDUSKY—Grayson, January; The Texas Co. 1 John Marshall, A. Tuttle Sur., A-1193. 2½ miles south Sandusky, Ellenburger, 7,818-85 ft., 105 bbl. oil, TD 7,885 ft.

SANDUSKY, EAST—Grayson. July; L. O. McMillan 1 Chambers, W. D. Fisher Survey, A-434, ½ mile east Sandusky, Simpson, 7,187-89 ft., 396 bbl. oil, TD 7,900 ft. 2 wells at year end.

UNNAMED—Limestone, July; Great Expectations Oil Corp. 1 J. P. Key, Rozelia Scott Survey, 4 miles west Mexia, Woodbine, 2,727-40 ft., 30,000,000 cu. ft. gas, TD 2,987 ft.

UNNAMED—Wood, September; Edson Petroleum Co. 1 J. L. Jacobs, W. H. Secrest Survey, A-523, 7 miles southwest Winnsboro. sub-Clarksville, 4,528-50 ft., 149 bbl. oil, TD 4,982 ft.

NEW PAYS

SANDUSKY - ELLENBURGER—Grayson, August; A. O. Phillips and Texas Co. 1 F. W. Reast, E. L. Stickney Survey, 1 mile south Sandusky, Ellenburger, 7,740-7,852 ft., 187 bbl. oil. TD 7,852 ft. 2 wells at year end.

SANDUSKY, EAST—Grayson, November; Ada Oil Co. 1 S. T. Barnes, E. L. Stickney Survey, 1¼ miles southeast Sandusky, Oil Creek sand, 7,160-82 ft., 193 bbl. oil, TD 7,806 ft.

SHERMAN, EAST — PENNSYLVANIAN—Sherman, January; Phillips Petroleum Co. 1 Willclo, 15-3T-T&NO, Pennsylvanian, 5,844-80 ft., 225 bbl. oil, TD 6,464 ft. 20 wells at year end.

TENNESSEE COLONY—Anderson, November; Texas Co. 1 M. T. Holmes, Francis Betick Survey, 2½ miles northeast Tennessee Colony. Petit, 9,611-42 ft., 235 bbl. oil, TD 10,090 ft. 9 wells at year end.

WASKOM—Harrison, January; LaGloria Corp. and Arkansas Fuel Oil Co. 1 Minnie B. Downs, 2½ miles northeast Elysian Fields, Travis Peak, 6,223-6,327 ft., 8,420,000 cu. ft. gas, TD 6,400 ft. 32 wells at year end.

NORTH CENTRAL TEXAS
Districts 7-B and 9

NEW POOLS

ANARENE—Archer, June; Ted Weiner 1 Olin Calvin, R. Grooms Survey, 2 miles southeast Anarene, Mississippian, 5,207-27 ft., 243 bbl. oil, TD 5,227 ft.

ANSON, NORTHWEST—Jones, May; Grisham-Hunter Corp. 1-A J. J. Steele Blk. 33, League 334, Harrison County School Lands, 8 miles northwest Anson, pay 2,635-48 ft., 67 bbl. oil, TD 2,648 ft.

ANTILLEY—Taylor, September; Hiawatha Oil & Gas Co. 1 Frank Antilley, 176-64-H&TC, 3 miles southwest Shep, pay 5,204-15 ft., 46 bbl. oil, TD 5,385 ft.

ARCHER - REGULAR—Archer, April; Bridwell Oil Co. 1 Bridwell-Jackson "C," W. B. Aldridge Survey, A-2, 10 miles northeast Archer City, Strawn, 3,978-4,010 ft., 126 bbl. oil, TD 5,120 ft.

ASPERMONT, NORTH—Stonewall, June; C. L. Norsworthy, Jr., 1 C. D. Wiley, 44-G-Alice Stephenson Survey, A-1797, 12 miles northeast Aspermont, Caddo conglomerate, 6,001-10 ft., 152 bbl. oil, TD 6,010 ft.

BACHMAN—Throckmorton, December; James H. Snowden 1 G. H. Bachman, Caddo, 4,342-49 ft., 89 bbl. oil, TD 4,349 ft.

BALLARD—Haskell, April; Rochester Oil Co. 1 Pat Ballard, Block 33, League 75, Red River CSL, 3 miles southeast Rochester, Strawn sand, 4,828-34 ft., 96 bbl. oil, TD 4,834 ft.

BALL-KUEHN—Jones, October; R-H-K Drilling Co., Ltd., 1 Herring & Largent, DeWitt County School Lands, 5 miles north Merkel, Strawn, 4,582-4,643 ft., 255 bbl. oil, TD 4,643 ft.

BANKLINE-OWEN—Eastland, May; Bankline Oil Co. 1 Mrs. Briggs Owen, 48-4-H&TC, 3½ miles west Eastland, sand, 3,248-77 ft., 100 bbl. oil, TD 3,952 ft.

BARBARA—Archer, June; J. C. Man, Jr. 1 Ernest Schrieber, Lot 68, Block 4, Clark & Plumb, 2 miles south Windthorst, Caddo, 5,069-93 ft., 48 bbl. oil, TD 5,093 ft.

BENJAMIN—Knox, September; Sinclair Oil & Gas Co. 1 B. H. Beavers, 224-44-H&TC, 3 miles north Benjamin, Caddo, 5,920-30 ft. 84 bbl. oil, TD 6,400 ft.

BESSIE—Throckmorton, January; William Hamm, Jr., 1 Bessie Rhodes, Section 302, BBB&C Survey, 3¾ miles north Throckmorton, Mississippian, 4,782-98 ft., 201 bbl. oil, TD 4,798 ft.

BIBB, EAST—Comanche, April; Sohio Petroleum Co. 1 Fred Jones, 31-V-ETRR, 3 miles northeast Sidney. Mississipoian, 2,334-2,406 ft., 167 bbl. oil, TD 2,844 ft.

BIBB, WEST—Comanche, May; Sohio Petroleum Co. 1 Stella M. Summers, Block 24, Lampasas County School Land, A-607, 3 miles northwest Sidney, Mississippian, 2,485-2,530 ft., 104 bbl. oil, TD 2,530 ft.

BIG SANDY—Stephens, June; Wittmer, Knight & Ewing 1 L. B. Norvell, 3-7-T&P, 8 miles southwest Breckenridge, pay 4,198-4,203 ft., 130 bbl. oil, TD 4,203 ft.

BILLINGS-DUNN—Coleman, July; Haynes B. Owenby Drilling Co. 1 C. A. Billings, Section 7 HT&B Survey, 1½ miles southwest Silver Valley, Gray sand, 3,578-3,646 ft., 98 bbl. oil, TD 3,646 ft.

BLAIR, SHALLOW—Taylor; October; Drilling & Exploration Co., Inc. 1 J. H. Doan, 64-19-T&P, 1 mile west Blair, Cook, 2,873-98 ft., 76 bbl. oil, TD 2,898 ft.

BLAIR, NORTH—Taylor, July; Geochemical Surveys, Inc., 1 W. L. Diltz, 14-18-T&P, 1½ miles southwest Merkel, Ellenburger, 5,378-5,409 ft., 85 bbl. oil, TD 5,409 ft.

BLUE GROVE—Clay, July; Ted Weiner 1 F. L. Brown, Block 2, Hopkins County School Lands Survey, A-178, 1⅛ mile southeast Bluegrove, Strawn sand, 4,667-70 ft., 170 bbl. oil, TD 4,721 ft.

BOEDECKER—Montague, May; Texas Co. 1 P. E. Boedecker, NW NW, Section 2,852, TE&L Survey, 4 miles northwest Bowie, Viola, 6,800-25 ft., 145 bbl. oil, TD 7,164 ft.

BOONSVILLE—Wise, September; Greenbrier Oil Co. 1 B. P. Vaught, S. G. Evitts Survey, A-266, 1½ miles northeast Boonsville, conglomerate, 5,073-79 ft., 33 bbl. oil, TD 5,790 ft.

BOWIE—Montague, July; Texas Co. 1 J. B. Zetzsche, Block 41, Hill County School

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BUFFALO SPRINGS — Clay, November; L. T. Burns 1 D. W. Fuller, Section 3,246, TE&L Survey, 1¼ miles east Buffalo Springs, Ellenburger, 6,502-52 ft., 56 bbl. oil, TD 6,554 ft.

BULLARD—Jones, September; DeSoto Oil Co. 1 G. Bullard, Section 2, GC&SF Survey, 2 miles southwest Anson, Flippen, 2,491-2,509 ft., 108 bbl. oil, TD 4,688 ft.

BUNTING—Clay, November; A. R. Dillard 1 Frank Bunting, TE&L Survey, 5 miles northwest Antelope, Strawn sand, 4,358-70 ft., 114 bbl. oil, TD 4,410 ft.

BURNS-BEACON—Clay, May; L. T. Burns 2 J. C. Lutz, T. F. Bates Survey, A-13, 6 miles northeast Joy field, 3 miles southeast Bluegrove, Caddo conglomerate, 5,666-86 ft., 130 bbl. oil. TD 6,313 ft.

BURNS-JONES, SOUTH — Archer, June; Neeld & Hood Drilling Co. 1-A B. W. Garvey, Section 1,862, TE&L Survey, A-543, 8 miles east Anarene, Strawn, 3,100-09 ft., 80 bbl. oil, TD 3,109 ft.

CARTWRIGHT—Knox, July; Texas Pacific Coal & Oil Co. 1 Louis Cartwright "A," Section 215, S. Washburn Survey, A-410, 4 miles southeast Munday, Strawn sand, 4,531-34 ft., 205 bbl. oil, TD 6,047 ft.

CHICO, EAST — Wise, February; Leland Fikes and Standard-Fryer Drilling Co. 1 Conley "A," M. Swift Survey, A-739, 4 miles southeast Chico, conglomerate, 5,672-88 ft., 187 bbl. oil, TD 5,850 ft.

CLAY COUNTY—Clay, February; Bridwell Oil Co. 1 Carle Sanzenbacher, Block 9, Grayson County School Lands Survey, 2½ miles north Blue Grove, Caddo, 6,038-58 ft., 79 bbl. oil, TD 6,058 ft.

CLAY COUNTY—Clay, April; Falcon-Seaboard Drilling Co. 1 Ambrose Douthitt, Section 22, Montague County School Lands, 10 miles northeast Henrietta, Mississippian, 5,627-42 ft., 72 bbl. oil, TD 5,995 ft.

COLEMAN JUNCTION, NORTH — Coleman, October; Anzac Oil Corp. 1 C. C. Cason & C. A. Crump, Coleman County School Lands, 5 miles southeast Coleman, Breneke sand, 2,064-74 ft., 63 bbl. oil, TD 2,076 ft.

COOKE-REGULAR—Cooke, May; Broday Drilling Co. and Redman Bros. 2 J. Wheeler, R. Ledbetter Survey, A-801, 5 miles northeast St. Joe, Strawn, 2,385-91 ft., 47 bbl. oil, TD 2,391 ft.

COURTNEY—Eastland, October; W. E. Bradley 2 J. W. Courtney, 41-4-H&TC, 3½ miles northwest Eastland, Strawn, 1,641-51 ft., 89 bbl. oil, TD 3,029 ft.

DOLLIE ADAMS—Throckmorton, March; Dollie Adams 1 J. W. Tharp, Section 243, BBB&C Survey, 4 miles northwest Throckmorton, Caddo, 4,532-45 ft., 218 bbl. oil, TD 4,545 ft.

DOUBLE "D" - CANYON — Shackelford, June; G. E. Kadane & Sons, 1-BB Brazell, Section 24-8-T&P, 12 miles east Albany, pay 1,885-93 ft., 59 bbl. oil, TD 1,893 ft.

FEATHERSTONE—Nolan, November; Sun Oil Co. 1 S. R. Featherstone, 38-X-T&P, 10 miles southeast Sweetwater, Strawn lime, 6,168-92 ft., 22 bbl. oil, TD 6,192 ft.

FREEPORT—Baylor, October; Helmerich & Payne, Inc., 1 Hardison, Block 9, Robertson County School Lands, 14 miles east Seymour, Ellenburger, 5,302-14 ft., 200 bbl. oil, TD 5,314 ft.

FORT CHADBOURNE, NORTH — Nolan, June; Drilling & Exploration, Inc., 1 S. B. Moore, SE SE 181-64-H&TC, 2 miles northeast Hylton, lower Fry sand, 5,032-42 ft., 27 bbl. oil, TD 5,831 ft.

GOREE—Knox, May; Lake Creek Oil Co. 1 Emma Cooksey, 6-2-D&W, 1,610-30 ft., 50 bbl. oil, TD 1,630 ft.

HAMLIN, EAST-STRAWN—Jones, May; Oxford Drilling Co. 1 Joe L. Culbertson, Section 6, GH&H Survey, 5 miles East Hamlin, Strawn, 5,048-64 ft., 436 bbl. oil, TD 5,064 ft.

HAMILTON, EAST- S WASTIKA — Jones, May; Ungren & Frazier 2 J. C. Culbertson, Section 6, GH&H Survey, 5 miles east Hanlin, Swastika sand 3,232-50 ft., 122 bbl. oil, TD 3,250 ft.

HARBAUGH—Shackelford, July; Taxman Oil Corp. 1 Mary O. Harbaugh, Section 1,563, TE&L Survey, 14 miles east Albany,

Ellenburger, 4,370-76 ft., 143 bbl. oil, TD 4,394 ft.

HENRIETTA—Clay, February; Continental Oil Co. 1 Alliance Trust Co., Block 27, Orange County School Lands Survey, 2½ miles south Henrietta, Bend conglomerate, 5,972-6,000 ft., 114 bbl. oil, TD 6,000 ft.

HENRIETTA-MISSISSIPPIAN — Clay, December; C. U. Bay 1 R. S. Thompson, Block 7, Graves subdivision, Orange County School Land Survey, 4½ miles southwest Henrietta, Mississippian, 5,945-54 ft., 150 bbl. oil, TD 5,954 ft.

HUBURT—Clay, July; J. B. Stoddard 1 E. D. Coleman, Section 3,225, TE&L Survey, ¾ mile south Buffalo Springs, Caddo, 5,704-34 ft., 92 bbl. oil, TD 6,594 ft.

IBEX, NORTHEAST CADDO — Stephens, November; G. E. Kadane & Sons and C. U. Bay 1 Black, Section 62, BAL Survey, 12 miles west Breckenridge, Caddo, 3,524-27 ft., 95 bbl. oil, TD 4,409 ft.

JACK COUNTY—Jack, January; Russell Maguire 1 E. C. Richards, T. Martinez Survey, A-388, 6 miles south Jacksboro, pay 5,321-38 ft., 42 bbl. oil, TD 5,338 ft.

JACKSON-STRAWN—Stephens, October; A. F. Knappenberger 1 F. R. Jackson, 79-4-T&P, 7 miles southeast Caddo, pay 1,769-75 ft., 102 bbl. oil, TD 1,775 ft.

JONES-HILL—Coleman, September; Robertson, Rhodes & Camden 1 Jones estate "B," H. Haddock Survey, 3½ miles southeast Novice, Morris sand, 3,274-89 ft., 252 bbl. oil, TD 3,289 ft.

JUPITER—Jack, December; Star Oil Co., Inc., 1-A T. H. Cherryhomes, C. J. C. O'Conner Survey, 4 miles south Cundiff, conglomerate, 5,619-5,722 ft., 210 bbl. oil, TD 5,722 ft.

KIOWA PEAK—Stonewall, August; Deep Rock Oil Co. 1 C. B. Long, Section 2, GH&H Survey, A-1765, northeast corner of county, Strawn sand, 5,124-34 ft., 106 bbl. oil, TD 5,134 ft.

KNOX CITY, NORTH—Knox, November; Stanolind Oil & Gas Co. 1 Icelena Clonts, D. G. Burnett Survey 7, 5 miles northeast Knox City, Palo Pinto, 4,225-4,240 ft., 130 bbl. oil, TD 4,240 ft.

LAKE ABILENE — Taylor, September; Kemp Drilling Co., Inc., 1 E. L. Young, 266-64-H&TC, 10 miles northwest Ovalo, Palo Pinto, 4,590-96 ft., 126 bbl. oil, TD 4,606 ft.

LENOIR — Stephens, March; James H. Snowden 1 J. F. Lenoir, G. C. Peveler Survey, 2 miles east, 1½ miles south, northwest corner of county, Strawn, 2,828-42 ft., 67 bbl. oil, TD 4,631 ft.

LEUDERS, NORTH—Shackelford, February; Anderson & Word 1 E. P. Armstrong, Section 13, Block A, AB&M Survey, 6 miles northeast Leuders, Cisco, 1,824-37 ft., 96 bbl. oil, TD 1,840 ft.

LYTLE—Jack, November; Robert S. Lytle 1 W. B. Stephens, J. D. Goodman Survey, 10 miles northeast Jacksboro, conglomerate, 5,080-84 ft., 140 bbl. oil, TD 5,475 ft.

MARYNEAL—Nolan, September; Sun Oil Co. 1 J. P. Maddox, 43-1A-H&TC, 8 miles southwest Maryneal, Ellenburger, 7,016-7, 132 ft., 16 bbl. oil, TD 7,132 ft.

MEGARGEL-STRAWN — Archer, November; L. T. Burns 4 O. L. Bishop, Block 52, Meade L. M. Pasture subdivision, 3½ miles east Megargel, Strawn, 3,930-45 ft., 124 bbl. oil, TD 3,945 ft.

MOBILE—Throckmorton, June; Mobile, Inc., & J. C. Roberts, 1 Everett-Roberts-Montgomery Unit, Section 1,621, TE&L Survey, Caddo, 4,145-55 ft., 175 bbl. oil, TD 4,789 ft.

MONTAGUE-REGULAR—Montague, May; B. F. Phillips, 1 W. M. Brooks, Section 10, MEP&P Survey, A-517, 3 miles south Nocona, conglomerate, 5,881-5,911 ft., 36 bbl. oil, TD 5,911 ft.

MONTAGUE-REGULAR—Montague, September; Midland Oil Corp., 1 G. H. Guerin, R. H. Grimes Survey, 5 miles north St. Jo, Strawn sand, 2,461-72 ft., 54 bbl. oil, TD 2,498 ft.

MORRISETT TANNEHILL—Callahan, October; Arthur N. Fastgen, 1 L. F. Martin, 63-14-T&P, 20 miles northwest Baird, sand, 1,609-18 ft., 165 bbl. oil, TD 1,618 ft.

MURPHY-KINKLE—Throckmorton, April; Grisham-Hunter Corp. 2 Murphy-Kunkel, Section 652, TE&L Survey, A-267, 14 miles south Throckmorton, Mississippian, 4,610-25 ft., 802 bbl. oil, TD 4,846 ft.

NAOMI—Montague, May; Bluff Creek Oil Co. 1 Naomi Jameson, S. F. Maines Survey, A-501, 1¼ miles west Montague, Bend conglomerate, 5,756-67 ft., 42 bbl. oil, TD 5,767 ft. 2 wells at year end.

OLD GLORY—Stonewall, July; Roark, Hooker and A. G. Hill 1 C. L. Williams, SW SW 6-C-AB&M, 8 miles northeast Aspermont, conglomerate, 5,875-86 ft., 803 bbl. oil, TD 5,886 ft.

PALO PINTO COUNTY—Palo Pinto, November; Palo Pinto Oil & Gas Corp. 1 William Sanders, 43-2-T&P, 11 miles north Strawn, pay 1,268-75 ft., 37 bbl. oil, TD 1,285 ft.

PATTERSON—Taylor, June; Geochemical Surveys 2 Tom Largent, Block 9, League 148, Grimes County School Land, 1¾ miles north Merkel, Strawn, 4,492 ft., 102 bbl. oil, TD 4,630 ft.

PEAVY—Jack, January; Hill & Hill 1 S. H. Peavy, T. W. Ellsberry Survey, A-1251, 5½ miles west Jacksboro, sand, 3,033 ft., 93 bbl. oil, TD 3,045 ft.

PERRY—Throckmorton, September; Shamrock Oil & Gas Corp. 1 C. R. Perry, Section 2,165, TE&L Survey, 4 miles southwest Elbert, Mississippian, 4,814-20 ft., 59 bbl. oil, TD 4,820 ft.

POPE-SAYLES—Stephens, February; McElroy Ranch Co. 1 W. K. Pope, Section 1,266, TE&L Survey, 6 miles northwest Breckenridge, Mississippian, 3,934-36 ft., 87 bbl. oil, TD 4,437 ft.

RADIUM—Jones, July; Geochemical Surveys 1 F. L. Adamson, Section 7, GH&H Survey, 1 mile northeast Radium, Canyon, 3,960-63 ft., 70 bbl. oil, TD 4,021 ft.

ROCKDALE—Haskell, July; Crown Central Petroleum Corp. 1 R. A. Gillespie, 5-3-H&TC, 13 miles east Stamford, Pennsylvanian, 1,548 ft., 42 bbl. oil, TD 5,303 ft.

SPANISH FORT—Montague, July; D. H. Bolin 1 L. R. Gist, F. Robertson Survey, A-620, 10 miles north Nocona, crinoidal sand, 1,650-1,708 ft., 121 bbl. oil, TD 1,708 ft.

STALEY-CONGLOMERATE — Clay, January; Continental Oil Co. 2 L. M. Staley, Sec. 1, H&TC Survey, A-253, 4 miles NW

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Ringgold, Bend conglomerate, 98 bbl. oil, TD 5,921 ft.

SUNSET—Wise, April; Cities Service Oil Co. 1 S. Williamson, Block 4, Falls CSL Survey, A-988, 5 miles northwest Alvord, Ellenburger 7,277-82 ft., 265 bbl. oil, TD 7,337 ft.

SWENSON "207"—Throckmorton, August; Cities Service Oil Co. 1-207 Swenson, Section 207, BBB&C Survey, A-127, 10 miles northwest Throckmorton, Caddo, 4,738-75 ft., 111 bbl. oil, TD 5,193 ft.

TAYLOR—Stephens, July; McElroy Ranch Co. 1 Glenn Taylor, Section 1,538, TE&L Survey, 9 miles west Breckenridge, Mississippian, 4,062-4,158 ft., 147 bbl. oil, TD 4,158 ft.

TAYLOR COUNTY—Taylor, July; J. D. Andrews 1 J. Bull, Section 456, John Walker Survey, 1 mile east Bradshaw, Gray sand, 4,452-60 ft., 17 bbl. oil, TD 4,916 ft.

TOOMBS—Taylor, May; Sojourner Drilling Co. 1 W. W. Toombs, SE SE NE 5-18-T&P, 3 miles southwest Merkel, pay 2,659-67 ft., 268 bbl. oil, TD 3,490 ft.

TRIGOOD—Shackelford, December; McElroy Ranch Co. 1 L. A. Sanders, Ellenburger 4,548-59 ft., 75 bbl. oil, TD 4,559 ft.

VOGTBERGER-STRAWN — Archer, May; Republic Natural Gas Co. 1 T. L. Norris, 6-1-H&TC, A-904, 8 miles south Wichita Falls, Strawn, 4,698-4,724 ft., 80 bbl. oil, TD 4,724 ft.

WICHITA-REGULAR—Wichita, March; Consolidated Oil Co. 1 G. W. Hund, Robert Evans Survey, A-74, 3 miles west Wichita Falls, pay 4,290-4,310 ft., 110 bbl. oil, TD 4,310 ft.

WICHITA-REGULAR—Wichita, April; Hale & West 1 J. R. Ray, L. P. Dikes Survey, A-580, 1 mile north Wichita Falls, Strawn sand, 4,430-55 ft., 84 bbl. oil, TD 4,455 ft.

WILBARGER-REGULAR — Wilbarger, April; J. O. Hancock 1 W. T. Waggoner estate, Section 1, SPRR Survey, A-534, 6 miles south Harrold, pay 1,912-19 ft., 75 bbl. oil, TD 1,919 ft.

WINDHAM—Shackelford, February; Starr Oil & Gas Co. 1 J. D. Windham "H," 80-12-T&P, 15 miles southwest Albany, Ellenburger, 4,728-38 ft., 106 bbl. oil, TD 4,738 ft.

WISDOM—Knox, May; R. Clay Underwood 1 Lora Dell Haskin Wisdom, 216-A-BBB&C, 6½ miles northeast Goree, pay 1,690-1,704 ft., 52 bbl. oil, TD 1,707 ft.

WOODSON, EAST—Throckmorton, September; Warren Oil Corp. 1 Mathews unit, Section 677, TE&L Survey, 5 miles southeast Woodson, Mississippian, 4,405-15 ft., 435 bbl. oil, TD 4,415 ft.

YOUNG-REGULAR — Young, December; C. J. Kleiner estate, Turner, Fiske & West 70C. W. Langston "A," TE&L Survey, 5 miles northwest Loving, Strawn sand, 3,521-27 ft., 103 bbl. oil, TD 3,537 ft.

UNNAMED—Archer, December; L. T. Burns 1 J. L. Anderson, South Anderson Ranch subdivision, 4 miles northeast Megargel, Mississippian, 5,072-5,118 ft., 148 bbl. oil, TD 5,118 ft.

UNNAMED—Callahan, June; S. C. Herring Drilling Co. 1 Rosa McCollum, Section 3,162, TE&L Survey, 7 miles northeast Putnam, Strawn, 1,719-23 ft., 20 bbl. oil, TD 4,147 ft.

UNNAMED—Callahan, June; S. C. Herring Drilling Co. 1 J. W. Booth, Section 3,193, TE&L Survey, 7 miles northeast Putnam, Caddo, 3,204-17 ft., 28 bbl. oil, TD 3,254 ft.

UNNAMED—Coleman, September; French M. Robertson 1 A. E. Jones, 16-2-T&NO, 3½ miles southeast Novice, Jennings sand, 3,435-45 ft., 87 bbl. oil, TD 3,445 ft.

UNNAMED—Coleman, October; B. H. Nolen 1 B. H. Nolen, J. B. Howington Survey, 13 miles northeast Coleman, Marble Falls, 2,746-2,834 ft., 64 bbl. oil, TD 2,834 ft.

UNNAMED — Comanche, March; Texas Crude Oil Co. 1 Burton, 82-1-Lampasas CSL, 11 miles southeast Rising Star, Pennsylvanian 2,590-2,600 ft., 134 bbl. oil, TD 3,008 ft.

UNNAMED—Comanche, July; Deep Well Oil Corp. 1 F. B. Porter, Section 17, D&DA Survey, 3½ miles south-southwest Gorman, Caddo, 2,664-94 ft., 15 bbl. oil, TD 3,063 ft.

UNNAMED—Cooke, December; J. R. & Adam Seitz 1 E. H. Dove, H. Coffee Survey, 6 miles southeast Woodbine, sand, 2,997-3,025 ft., 45 bbl. oil, TD 3,677 ft.

UNNAMED—Fisher, June; Roeser & Pendleton, Inc., 1 Mose Newman, Industries, 8-20-T&P, 5 miles northwest Eskota, sand, 5,613 ft., 100 bbl. oil, TD 5,633 ft.

UNNAMED—Fisher, October; British American Oil Producing Co. 1 George W. Stuart, 8-20-T&P, 3½ miles northwest Eskota, Strawn, 5,608-28 ft., 30 bbl. oil, TD 6,098 ft.

UNNAMED—Fisher, December; Texas Pacific Coal & Oil Co. 1 V. P. Toler, 202-1-BBB&C, 5 miles northwest Hamlin, Swastika, 3,773-84 ft., 91 bbl. oil, TD 6,053 ft.

UNNAMED—Hardeman, October; Cities Service Oil Co. 1 Certainteed Products Co., 145-H-W&NW, 3 miles north Quannah, lower Canyon, 5,832-65 ft., 14 bbl. oil, TD 8,116 ft.

UNNAMED—Haskell, January; Sojourner Drilling Co., Ltd., 1 W. P. Crouch, 27-1-H&TC, 3 miles west Haskell, Strawn, 5,202-25 ft., 250 bbl. oil, TD 5,225 ft.

UNNAMED—Haskell, April; Texas Pacific Coal & Oil Co. 1 Juliana McGregor, Section 46, G. G. Alford Survey, 6 miles west O'Brien, Strawn, 4,969-94 ft., 210 bbl. oil, TD 6,150 ft.

UNNAMED—Jack, January: L. M. Lockhard and C. C. Glasscock 1 L. A. Worthington, SPRR Survey, A-575, 5 miles north Jacksboro, conglomerate 5,383-88 ft., 176 bbl. oil, TD 5,410 ft.

UNNAMED—Jack, January; Newman Bros. Drilling Co. et al 1 Cherryholmes, L. L. McKinley Survey, A-1557, 10 miles east Jacksboro, conglomerate, 4,980-5,019 ft., 1,500,000 cu. ft. gas, TD 5,810 ft.

UNNAMED—Jack, March; Roeser & Pendleton, Inc. et al 1 Jackson heirs, Lot 39, League 2, Henderson CSL, 13 miles southeast Jacksboro, conglomerate, 4,480-90 ft., 109 bbl. oil, TD 4,490 ft.

UNNAMED—Jack, December; Warren Oil Corp. 1 T. H. Cherryholmes, MEP&P Survey, 6 miles southeast Jacksboro, con-

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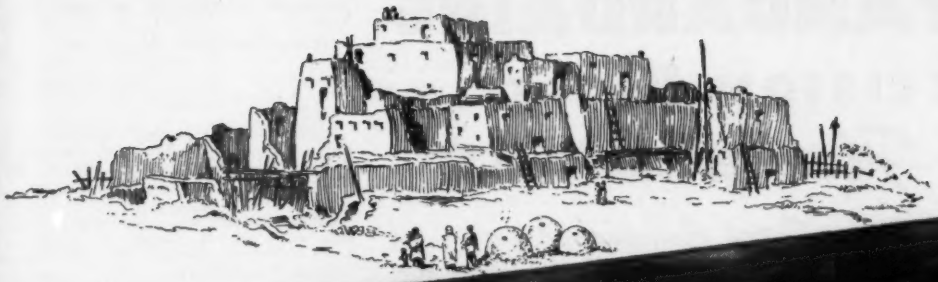

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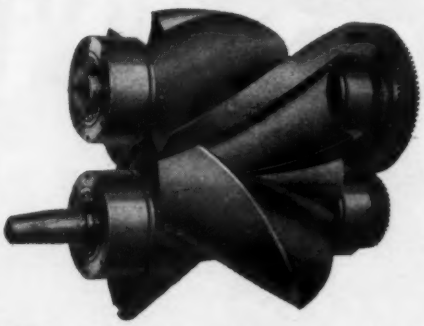

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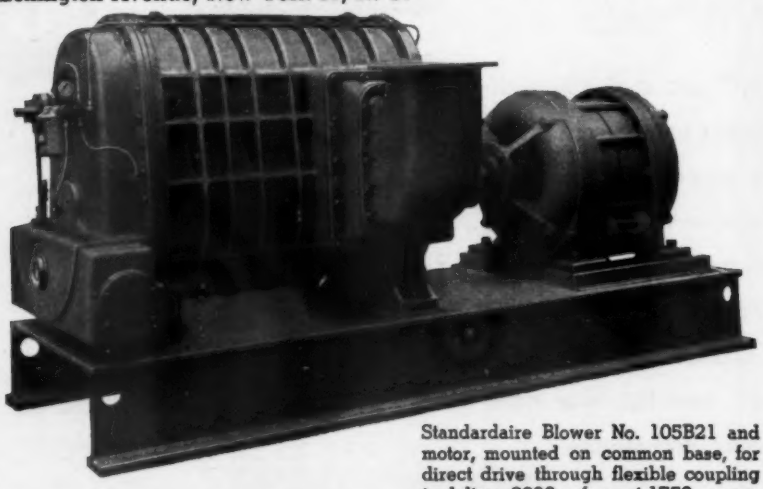

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glomerate, 4,707-18 ft., 395 bbl. oil, TD 4,718 ft.

UNNAMED—Jones, March; West Central Drilling Co. 1 B. Dougherty, C. B. Greenwood Survey 202, 10 miles southwest Anson, sand, 2,221-31 ft., 69 bbl. oil, TD 2,231 ft.

UNNAMED—Jones, May; Lester & Duffield, Inc. 1 J. P. Bingham, League 359, Goliad CSL, 10 miles west Anson, Swastika sand, 3,282-88 ft., 88 bbl. oil, TD 3,290 ft.

UNNAMED—Jones, September; M. J. Mitchell 1 M. H. Goode, 43-18-T&P, 1½ miles southeast Noodle, pay 4,706-16 ft., 155 bbl. oil, TD 4,716 ft.

UNNAMED—Jones, September; West Central Drilling Co. 1 A. Collins, 7-16-T&P, 2 miles southeast Hodges, pay 1,962-72 ft., 90 bbl. oil, TD 2,565 ft.

UNNAMED—Jones, October; Con Tex Petroleum Corp. 1 Mabel Killough, 8-16-T&P, 4 miles southwest Hawley, sand, 1,983-87 ft., 50 bbl. oil, TD 2,605 ft.

UNNAMED—Jones, October; Con Tex Petroleum Corp. 2 M. E. Yeatts, 8-16-T&P, 4 miles southwest Hawley, sand, 1,973-78 ft., 75 bbl. oil, TD 2,016 ft.

UNNAMED—Jones, October; Lester & Duffield, Inc. 1 J. A. Walker, Section 97-1-BBB&C, 2 miles southeast Radium, Flippen, 2,522-30 ft., 67 bbl. oil, TD 3,150 ft.

UNNAMED—Jones, October; Fox, Ransdell, Witherspoon et al 1 Carl Jackson, Section 267, M. Fragosa Survey, 3 miles southeast Noodle, Strawn sand, 4,637-51 ft., 138 bbl. oil, TD 4,651 ft.

UNNAMED—Jones, October; Woodley Petroleum Co. and Kirby Petroleum Corp. 1 T. H. Bumpass "A," Allen B. Jones Survey 265, 5 miles northeast Noodle, Gunsight, 2,827-33 ft., 63 bbl. oil, TD 4,735 ft.

UNNAMED—Jones, November; Yeatman Drilling Co. 1 S. C. Potts, 6-1-T&NO, 2 miles southwest Anson, Flippen, 2,516-22 ft., 147 bbl. oil, TD 2,522 ft.

UNNAMED—Montague, December; W. T. Waggoner estate 1 Paine McGaw, William Ainsworth Survey, 4 miles west Nocona, Strawn, 4,616-78 ft., 62 bbl. oil, TD 5,587 ft.

UNNAMED—Montague, June; H. O. Grace 1 C. E. Cunningham, S. H. Stephens Survey, A-683, 2 miles northeast St. Jo, sand, 3,971-75 ft., 72 bbl. oil, TD 3,985 ft.

UNNAMED—Montague, July; Mid-Continent Petroleum Corp. 1 W. G. Embry, E. Wingate Survey, A-835, 5 miles southeast Montague, Caddo, 6,150-74 ft., 125 bbl. oil, TD 6,668 ft.

UNNAMED—Montague, August; D. H. Bolin 1-C P. Howard, F. Robertson Survey, A-620, 14 miles north Nocona, crinoidal lime, 1,630-48 ft., 192 bbl. oil, TD 1,648 ft.

UNNAMED—Stephens, June; R. W. Fair and Don L. Choate 1 R. L. Glasscock, 80-4-T&P, 6 miles southeast Frankell, pay 1,745-61 ft., 46 bbl. oil, TD 1,999 ft.

UNNAMED—Stephens, July; R. W. Fair and Don L. Choate 1 F. R. Jackson, 79-4-T&P, 10 miles north Ranger, pay 1,757 ft., 100 bbl. oil, TD 1,770 ft.

UNNAMED—Stephens, August; Oil Associates, Inc. 1 Black "A," 23-4-SPRR, 7 miles northeast Breckenridge, Caddo, 4,065 ft., 20,500,000 cu. ft. gas, TD 4,527 ft.

UNNAMED—Taylor, January; J. W. Gehle 1 S. H. Curry, J. E. Shepard Survey 96, 3½ miles southwest Abilene, Gardner sand, 4,083-95 ft., 121 bbl. oil, TD 4,095 ft.

UNNAMED — Throckmorton, February; James H. Snowden 1 R. A. Mills, Section 3,096, TE&L Survey, 2½ miles northeast Throckmorton, Caddo, 4,358-66 ft., 121 bbl. oil, TD 4,366 ft.

UNNAMED — Throckmorton, November; Cities Service Oil Co. 1 Swenson, Section 170, BBB&C Survey, 9 miles northwest Throckmorton, Caddo, 4,903-12 ft., 217 bbl. oil, TD 5,734 ft.

UNNAMED—Wise, February; Atkin & Dimock 1 J. I. Gentry, SE SE Block 83, lower Matagorda School Lands, A-534, 5 miles southwest Paradise, conglomerate, 5,985-6,012 ft., 1,873,000 cu. ft. gas, 67 bbl. distillate per 1,000,000 cu. ft., TD 6,012 ft.

UNNAMED—Wise, May; Lone Star Production Co. 1 N. L. Conley, M. Swift Survey, 4 miles southeast Chico, Caddo, 5,612-25 ft., 1,200,000 cu. ft. gas, TD 7,395 ft.

UNNAMED—Wise, July; Mid-Continent

Petroleum Corp. 1 M. S. McBride "B," W. Burk Survey, A-39, 2 miles south Paradise, pay 5,525-30 ft., 2,175,000 cu. ft. gas, TD 6,000 ft.

UNNAMED—Young, March; Mid-Continent Petroleum Corp. and Panhandle Drilling & Development Co. 1 Annie Leberman, Section 270, TE&L Survey, 7 miles southwest Jean, Mississippian, 4,845-54 ft., 249 bbl. oil, TD 4,854 ft.

UNNAMED—Young, July; Portable Drilling Corp. 1 L. F. Atwood, Section 1660, TE&L Survey, 15 miles southwest of Newcastle, Caddo, 3,718-31 ft., 5 bbl. oil, TD 4,670 ft.

UNNAMED—Young, November; Mid-Continent Petroleum Corp. 1 C. B. Daniels, TE&L Survey, 2½ miles southeast Newcastle, Mississippian, 4,660-73 ft., 393 bbl. oil, TD 4,673 ft.

NEW PAYS

HAMMON—Wichita, March; W. H. Hammon and Warren Oil Corp. 14 T. J. Cole "A," Block 10, Palo Pinto CSL, 6 miles north Holliday, Ellenburger, 4,681-99 ft., 128 bbl. oil, TD 4,699 ft.

HATCHETT—Jones, May; Ungren & Frazier 1 J. F. Boren, G. Martinez Survey 194, Flippen sand, 2,009-17 ft., 105 bbl. oil, TD 2,017 ft.

JOHN KAY-CANYON—Archer, August; Robert T. Morgan 2 Ferguson-Deep, Section 1, SPRR Survey, A-416, 2½ miles northeast Mankins, pay 2,533-35 ft., 126 bbl. oil, TD 3,517 ft.

LAZY B—Clay, March; Gulf Oil Corp. 1 Mrs. M. B. Day, Block 22, R. J. Brown Survey, A-1102, 6 miles west Joy, Mississippian, 6,100-69 ft., 91 bbl. oil, TD 6,169 ft.

STANLEY—Jones, May; American Trading & Production Corp. 2 L. R. Stanley, 14-17-T&P, reef lime, 4,222-29 ft., 1,002 bbl. oil, TD 4,237 ft., OWDD.

THROCKMORTON COUNTY-REGULAR—Throckmorton, February; Grisham-Hunter Corp. 11 Paul S. Harrington, Section 2, Brooks & Burleson Survey, 9½ miles southwest Throckmorton, conglomerate, 4,598-4,601 ft., 190 bbl. oil, TD 4,713 ft., OWWO.

THROCKMORTON COUNTY — Throckmorton, August; E. R. Perkins 1 C. Forman, Section 3037, TE&L Survey, 7 miles northeast Throckmorton, Strawn sand, 3,730-40 ft., 84 bbl. oil, TD 3,740 ft.

THROCKMORTON COUNTY-REGULAR—Fred M. Manning, Inc. 1 L. C. Atkinson "H," J. B. Styles & N. G. Buchanan Survey, 4 miles southeast Throckmorton, Caddo, 4,202-07 ft., 78 bbl. oil, OWPB.

WARE—Jack, July; Paul P. Steed 1-A Nannie E. Ware, Section 3,350, TE&L Survey, 5 miles southeast Jermyn, Bryson, 3,138-48 ft., 230 bbl. oil, TD 3,148 ft.

WOODSON, NORTHEAST - CADDO—Throckmorton, October; Warren Oil Corp. 1 Graham unit, TE&L Survey, 3 miles northeast Woodson, Caddo, 3,909-19 ft., 91 bbl. oil, TD 3,919 ft.

WOODSON, WEST—Throckmorton, February; Bishop Oil Co. 1 Sudie Daws, Sec. 965, TE&L Survey, ½ mile west Woodson, Caddo, 4,234-42 ft., 150 bbl. oil, TD 4,586 ft.

UNNAMED—Montague, September; W. H. Bryant 1 C. C. Lacy, Caddo, 4,865-73 ft., 68 bbl. oil.

UNNAMED—Stephens, July; G. E. Kadane & Sons 1 Sayles "AA," Section 1,265, TE&L Survey, 7 miles northwest Breckenridge, pay 2,347 ft., 88 bbl. oil, TD 2,350 ft.

UNNAMED — Throckmorton, November; Woodley Petroleum Co. 3 Spain estate, Section 967, TE&L Survey, 2½ miles northwest Woodson, Caddo, 3,978-88 ft., 59 bbl. oil.

WEST TEXAS

Districts 7C and 8

NEW POOLS

ABELL-4,900-FT.-PERMIAN—Pecos, April; George T. Abell 1 L. G. Byerley, 29-9-H&GN, Permian, 4,915-40 ft., 120 bbl. oil, TD 5,815 ft. 6 wells at year end.

ABELL, EAST-WADDELL—Pecos, May; Magnolia Petroleum Co. 2 State Vollmar, Lot 7, Section 28-9-H&GN, Waddell sand, 6,008-23 ft., 311 bbl. oil, TD 6,030 ft., 2 wells at year end.

ADAIR-WOLFCAMP—Terry, September; Amerada Petroleum Corp. 2 Willard, 6-C37-PSL, Wolfcamp, 8,505-63 ft., 912 bbl. oil, TD 8,610 ft., 6 wells at year end.

ALDRIDGE—Runnels, January; S. C. Herring Drilling Co. 1 A. L. Aldridge, David Moseley Survey, Section 521, 10 miles NE Winters, Gardner sand, 124 bbl. oil, TD 3,919 ft., 3 wells at year end.

ANTON, WEST—Hockley, October; Humble Oil & Refining Co. 1 J. J. Hobgood, Labor 10, League 693, State Capitol lands, 8 miles northwest Yellowhouse field, Clear Fork, 6,665-75 ft., 130 bbl. oil, TD 10,179 ft.

BEDDO, NORTH—Runnels, May; O. W. Killam and Frank Pethybridge 1 J. P. Knight, Section 346, BBB&C Survey, 7 miles southeast Winters, Strawn, 3,958-68 ft., 4,830,000 cu. ft. gas, TD 4,376 ft.

BEDDO, NORTH-GRAY—Runnels, July; C. W. Killam 1 W. W. Early, Section 346, BBB&C Survey, 7 miles southeast Winters, Gray sand, 3,979-90 ft., 235 bbl. oil, TD 4,075 ft.

BILES—Andrews, November; The Texas Co. 1 J. D. Biles, 15-A31-PSL, 3 miles west Union field, Wichita-Albany, 7,390-7,573 ft., 330 bbl. oil, TD 7,573 ft.

BLOCK 31-CONNELL—Crane, November; Atlantic Refining Co. 1-LL University, Block 31, 6-31-University Lands, 2½ miles west Waddell field, Connell sand, 11,470-11,510 ft., 262 bbl. oil, TD 11,915 ft.

BROWNFIELD, SOUTH—Terry, September; Union Oil Co. of California 1 Laura A. Cotten, 91-T-D&W, 4 miles southeast Brownsfield, Pennsylvanian, 9,998-10,073 ft., 1,812 bbl. oil, TD 10,182 ft.

BURTON—Howard, November; Stanolind Oil & Gas Co. 1 C. W. Burton, 27-33-2N-T&P, 11 miles north Big Spring, Pennsylvanian, 8,870-8,920 ft. 217 bbl. oil, TD 9,618 ft.

CANNING—Borden, July; Vickers Petroleum Co., Inc., and Norwood Drilling Co. 1-A J. R. Canning, 142-25-H&TC, 3 miles north Von Roeder field, Wolfcamp, 5,912-37 ft., 1,267 bbl. oil, TD 5,937 ft., 2 wells at year end.

CLAIREMONT—Kent, April; General

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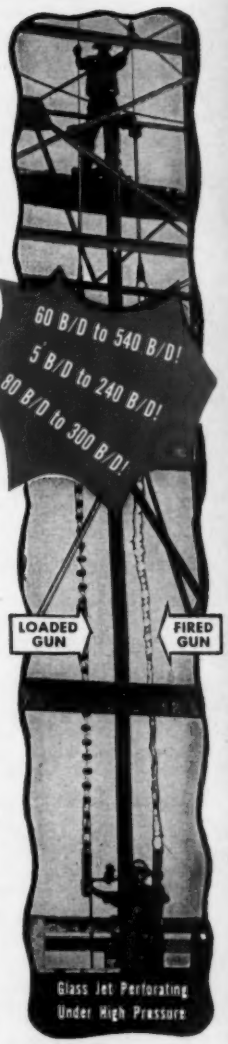

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Crude Oil Co. 1-A Percy Jones, NE NE 79-G-W&NW Survey, ½ mile southwest Clairemont, Strawn, 6,742-52 ft., 384 bbl. oil, TD 6,752 ft., 3 wells at year end.

CLAYTON RANCH—Crockett, June; Magnolia Petroleum Co. 1 Boyd Clayton, CE½ SW 12-GH-GC&SF, 10 miles east Ozona, Ellenburger, 8,630-8,730 ft., 120 bbl. distillate, TD 9,076 ft.

COBB—Yoakum, April; Honolulu Oil Corp. 1 Paul Cobb, SE SW 381-D J. H. Gibson Survey, 2½ miles northeast Ownby San Andres field, Clear Fork, 6,035-6,200 ft., 189 bbl. oil, TD 11,662 ft., 5 wells at year end.

COBB-6,700 FT.—Yoakum, June; Honolulu Oil Corp. 1 Charles B. Towns, 382-D J. H. Gibson Survey, 13 miles east Plains, Clear Fork, 6,626-6,749 ft., 106 bbl. oil, TD 6,770 ft.

COGDELL—Kent, January; J. A. Chapman Producing Co. 1 D. M. Cogdell, 716-97-H&TC, Canyon reef, 6,841-47 ft., 595 bbl. oil, TD 6,857 ft., 188 wells at year end.

CONNELL—Kent, March; Drilling & Exploration Co., Inc., 1 Wilson Connell, NE NE 19-5-H&GN, 2 miles southeast Polar, San Andres, 2,340-50 ft., 12 bbl. oil, TD 9,525 ft., sand, 8,559-62 ft., 185 bbl. oil. 5 7,931 ft.

CORRIGAN—Terry, January; Tide Water Associated Oil Co. 1 J. P. Nystel, NW NW 9-C38-PSL, 4 miles northeast Adair field, Fusselman, 11,475-11,542 ft., 1,121 bbl. oil, TD 12,094 ft. 3 wells at year end.

CREE-SYKES—Runnels, July; G. B. Cree 1 O. C. Sykes, Section 6, H. Lewis Survey, 10 miles east Winters, Gardner sand, 3,874-94 ft., 330 bbl. oil, TD 3,894 ft. 16 wells at year end.

CROSSETT-PERMIAN—Crane, March; The Texas Co. 6-B C. W. Hobbs NCT-2, 34-35-H&TC, 2 miles north Crossett Devonian field, Permian, 5,085-5,110 ft., 116 bbl oil, TD 5,501. 2 wells at year end.

DAVIS—Runnels, June; Vincent & Welch. Inc., 1 P. M. Davis, Section 329, H&TC Survey, 8 miles southeast Winters, Palo Pinto, 3,600-10 ft., 219 bbl. oil, TD 3,610 ft. 4 wells at year end.

DONNELLY-HOLT—Ector, February; Eastland Oil Co. 1 J. Lee Johnson, Jr., NW SW 37-44-T1S-T&P, 700 ft. southwest of Eastland's San Andres discovery, Holt, 5,280-5,492 ft., 65 bbl. oil, TD 5,800 ft. 5 wells at year end.

DONNELLY-SAN ANDREWS—Ector, February; Eastland Oil Co. 1-S J. L. Johnson, 37-44-T1S-T&P, 3 miles south Goldsmith field, San Andres, 4,305-60 ft., 152 bbl. oil, TD 4,360 ft. 5 wells at year end.

DORWARD—Garza, January; George Callihan & Harrison 1 J. C. Dorward, 114-5-H&GN, southeast of Justiceburg field, San Andres, 2,454-70 ft., 70 bbl. oil, TD 2,470 ft. 41 wells at year end.

DURHAM—Sterling, April; M & M Production Co. 1 D. C. Durham, 19-12-SPRR, 2½ miles south Sterling City, San Andres, 1,460-76 ft., 32 bbl. oil, TD 1,476 ft. 6 wells at year end.

EILAND—Scurry, November; Delta Gulf Drilling Co. and Delta Drilling Co. 1 H. H. Eiland, 283-97-H&TC, 5 miles northwest Diamond-M field, Ellenburger, 8,182-90 ft., 87 bbl. oil, TD 8,230 ft.

FASKEN—Andrews, January; Stanolind Oil & Gas Co. 1-H David Fasken, NE NE 37-42-1N-G&MMB&A, 1¾ miles northeast Cowden field, Grayburg, 4,750-4,860 ft., 55 bbl. oil, TD 4,909 ft.

FLOREY—Gaines, April; Forest Oil Corp. and Anderson-Prichard Oil Corp. 1-A Parmer CSL, Labor 12, League 317, Parmer CSL, 15 miles southeast Seminole, Mississippian, 12,100-12,235 ft., 203 bbl. oil, TD 14,150 ft.

GERMANIA—Midland, March; James H Snowden 1 Andrew Fasken, SW NE 7-36-2S-T&P, Spraberry, 7,125-7,343 ft., 69 bbl. oil, TD 7,343 ft., OWDD, 3 wells at year end.

GIRVIN—Pecos, April; La Gloria Corp. 1 Arthur A. Sullivan, NW NW 68-11-H&GN, 2 miles south Girvin, Clear Fork, 3,085-3,12[illegible] ft., 97 bbl. oil, TD 4,632 ft.

GIRVIN-SIMPSON—Pecos, January; La-Gloria Corp. 1 LaVerne L. Cresse, SE SW 78-11-H&GN, 2½ miles northwest Girvin, Simpson, 4,753-4,777 ft., 105 bbl. oil, TD 5,100 ft. 2 wells at year end.

HARRIET—Tom Green, September; Shell Oil Co. 1 W. J. Johnson, Section 21, WCRR Survey, 12 miles east Sun Oil Co. 2 Pulliam, Des Moines lime, 4,675-4,706 ft., 23 bbl. oil, TD 5,376 ft.

HENARD—Yoakum, October; Dunigan Brothers & Brahaney 1 Henard, 367-D J. H. Gibson Survey, 2½ miles north Brahaney field, San Andres, 5,205-85 ft., 56 bbl. oil, TD 5,285 ft.

HERMLEIGH—Scurry, January; C. L. Norsworthy, R. W. Baxter, Standard-Feyer Drilling Co. and Ted Weiner 1 D. D. Feldman, NE NE 63-3-H&TC, 11 miles east Snyder, Ellenburger, 7,309-35 ft., 121 bbl. oil, TD 7,362 ft.

HOBBS, EAST—Gaines, January; Mid-Continent Petroleum Corp. 1 L. R. Nichols, NW NW 7-A10-PSL, 5 miles E Hobbs, N. M., Glorietta, 6,390-6,448 ft., 97 bbl. oil, TD 7,510 ft.

HOBBS, EAST-5,900-FT.—Gaines, March; Humble Oil & Refining Co. 1 E. B. Bailey, SE NW 6-A10-PSL, San Angelo, 5,845-58 ft., 239 bbl. oil, TD 6,460 ft.

HUDDLE—Dawson, October; Fred M. Manning, Inc., 1 D. Huddle, 11-36-5N-T&P, 1½ miles southwest Lamesa, Spraberry, 7,856-7,985 ft., 186 bbl. oil, TD 9,914 ft.

HULLDALE—Schleicher, October; Delta Gulf Drilling Co. 1 H. F. Thomson, 71-TT-TCRR, 1½ miles southeast Hulldale, Strawn reef, 5,772-5,803 ft., 1,456 bbl. oil, TD 5,803 ft.

HUTTO—Howard, June; Stanolind Oil & Gas Co. 1 Louis Hutto, 4-31-1S-T&P, 2½ miles southwest Coahoma, Wolfcamp, 7,370-7,430 ft., 27 bbl. oil, TD 9,347 ft.

KEN—Kimble, July; J. K. Davis 1 Mrs. W. Faulkner, 79-A-GWT&P, east central part of county, Strawn, 2,910-22 ft., 96 bbl. oil, TD 2,922 ft.

LLOYD—Runnels, March; Garland Anthony 1 W. P. Lloyd, Section 94, Hattie E. Baggs Survey, 4 miles southeast Wingate,

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McCUTCHEON—Coke, July; Union Oil Co. of California 1-B Daisy McCutcheon, 445-1A-H&TC, 5 miles east Robert Lee, upper Cisco sand, 3,952-65 ft., 179 bbl. oil, TD 6,685 ft. 6 wells at year end.

MIDKIFF—Midland, November; Humble Oil & Refining Co. 1 T. O. Midkiff estate, 46-38-4S-T&P, 10 miles south Tex Harvey field, Spraberry, 7,304-7,414 ft., 80 bbl. oil, TD 7,520 ft.

NORA—Runnels, October; John A. Messinger 1 Mrs. Nora May Jones, Block 535, E. Mathers Survey, 5 miles southeast Winters, Gardner sand, 4,078-4,108 ft., 134 bbl. oil, TD 4,108 ft.

O'DANIEL—Howard, August; Shell Oil Co. 1 M. H. O'Daniel, 2-30-T1N-T&P, 5 miles north Iatan-East Howard field, Canyon reef, 7,995-8,005 ft., 404 bbl. oil, TD 8,780 ft.

O'DONNELL—Lynn, May; Magnolia Petroleum Co. 1 Garza Land & Cattle Co., NW SE 431-9-ELRR, 3½ miles southeast Draw, Canyon reef, 8,615-30 ft., 245 bbl. oil, TD 8,630 ft. 2 wells at year end.

PARKS-ELLENBURGER—Midland, June; Magnolia Petroleum Co. 2 Roy Parks, NW NW Section 10, M. C. Daugherty 10, 11½ miles southwest Midland, Ellenburger, 12,995-970 ft., 785 bbl. oil, TD 12,970 ft.

PEMBROOK—Upton, January; Humble Oil & Refining Co. 1 Ralph Pembrook, 1-X C. C. DeWitt Survey, 6 miles north Benedum field, Spraberry, 7,080-7,100 ft., 34 bbl. oil, TD 12,660 ft.

POLAR, EAST—Kent, June; Kewanne Oil Co. 1-C Wilson Connell, NW SE 3-4-H&GN, 4 miles east Polar field, Pennsylvanian, 6,853-70 ft., 328 bbl. oil, TD 6,880 ft.

POLAR, NORTH—Kent, October; Star Oil Co., Moore-Cook 1 Blanche Young, 54-5-H&GN, 4 miles north Polar, Ellenburger, 7,780-7,822 ft., 1,476 bbl. oil, TD 7,822 ft.

PULLIAM—Tom Green, January; Sun Oil Co. 2 M. P. Pulliam, SE SE 14-4-H&TC, 4 miles west San Angelo, Strawn lime, 5,520-52 ft., 28 bbl. oil, TD 5,552 ft. 4 wells at year end.

REINECKE—Borden, February; Geo. P. Livermore, Inc., 1 W. Reinecke, NW SW 53-25-H&TC, .5½ miles southwest 1 Von Roeder, Canyon reef, 6,754-98 ft., 1,530 bbl. oil, TD 6,798 ft. 46 wells at year end.

ROBBINS—Crane, August; Union Sulphur Co., Inc., 1 R. B. Robbins, 37-35-H&TC, 6 miles northwest McCamey, Clear Fork, 3,407-19 ft., 55 bbl. oil, TD 5,503 ft.

ROBERTSON-CANYON—Gaines, October; Shell Oil Co. 1 T. O. Stark, 12-A24-PSL, 7 miles southwest Seminole, Pennsylvanian, 8,980-9,050 ft. 143 bbl. oil, 9 wells at year end.

ROPES—Hockley, May; Honolulu Oil Corp. and Signal Oil & Gas Co. 1-13 M. D. Underwood, Labor 13, League 5, Wilbarger County School Land, southeast corner of county, Pennsylvanian, 9,290-9,325 ft., 2,236 bbl. oil, TD 9,325 ft. 6 wells at year end.

SALT CREEK—Kent, April; Caroline Hunt Trust estate 1 J. W. Young, 166-G-W&NW, 7½ miles northwest Clairemont, Canyon reef, 6,484-6,520 ft., 2,184 bbl. oil, TD 7,232 ft. 50 wells at year end.

SAXON—Runnels, July; Saxon Exploration C. 1 James Roberts, Robertson & Pierce Survey 42, 2 miles northwest Talpa, Serrat sand, 2,019-29 ft., 101 bbl. oil, TD 3,660 ft.

SMITH-CLEAR FORK—Andrews, October; Garrett M. Smith 1 McWhorter-Hall, 8-A29-PSL, 7½ miles west Fullerton field, Wichita-Albany, 7,340-7,508 ft., 198 bbl. oil, TD 7,508 ft.

SPARTAN—Kent, May; Spartan Drilling Co., Lone Star Producing Co. and Signal Oil & Gas Co. 1 J. W. Young, NW NW 98-G-W&NW, 11 miles west Clairemont, lower Strawn, 7,353-59 ft., 51 bbl. oil, TD 7,895 ft.

SPIRES—Kent, April; Barnsdall Oil Co. 1 R. L. Spires, NE SW 22-4-H&GN, 8½ miles northeast Polar field, Strawn, 6,755-71 ft., 400 bbl. oil, TD 7,564 ft. 2 wells at year end.

SWEETIE PECK—Midland, March; General American Oil Co. 1-E Josie Faye Peck, NW NW 21-41-T4S-T&P, 4 miles northwest Pegasus field, Ellenburger, 13,128-13,246 ft., 1,056 bbl. oil, TD 13,397 ft. 37 wells at year end (Ellenburger, Devonian, and Pennsylvanian).

TIMMERMAN—Midland, December; Magnolia Petroleum Co. 1 H. F. Timmerman, 8-40-3S-T&P, 13 miles south Midland, Pennsylvanian, 10,440-485 ft., 400 bbl. oil, TD 13,030 ft.

TRUITT—Runnels, September; Mid-Continent Petroleum Corp. 1 Mary Sykes, Marshall University Survey 511, 3½ miles northwest Cree-Sykes field, Morris sand, 3,703-16 ft., 56 bbl. oil 19 3,716 ft. 2 wells at year end.

VEALMOOR, EAST—Borden, March; Barnsdall Oil Co. 1 W. L. Wilson, NE NE 16-27-H&TC, Pennsylvanian, 7,414-52 ft., 1,604 bbl. oil, TD 7,452 ft. 26 wells at year end (Pennsylvanian and Wolfcamp).

VEALMOOR, NORTH—Borden, March; Seaboard Oil Corp. 1 Porter Hanks, NE NW 19-32-3N-T&P, 1 mile north Vealmoor, Canyon reef, 8,167-8,200 ft., 218 bbl. oil, TD 8,225 ft.

VON ROEDER—Borden, January; Amerada Petroleum Corp. 1 N. C. Von Roeder, 103-25-H&TC, Canyon reef, 7,100-10 ft., 185 bbl. oil, TD 7,556 ft. 19 wells at year end.

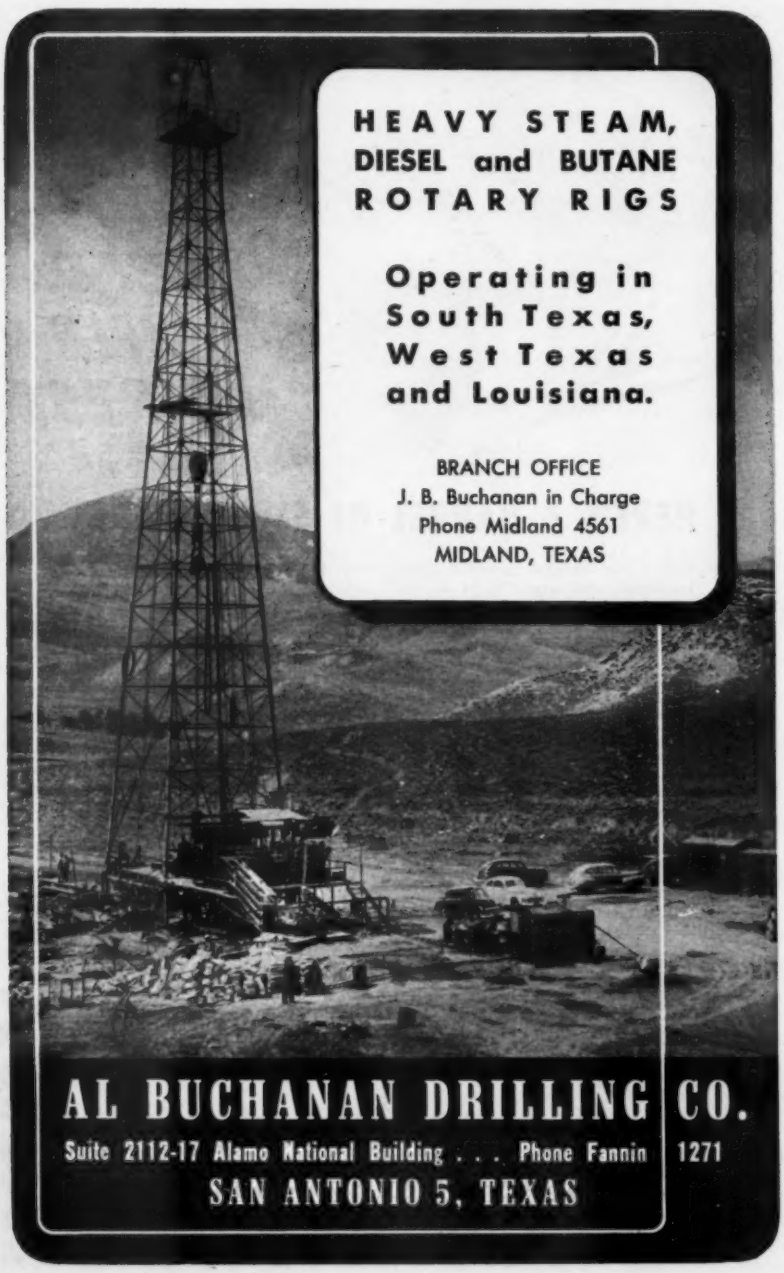
WELLMAN—Terry, July; Anderson-Prichard Oil Corp. 1 H. C. Bevers, Pennsylvanian reef, 9,712-9,805 ft., 2,280 bbl. oil, TD 9,811 ft. 4 wells at year end.

WINTERS, WEST—Runnels, September; Robinson-Puckett, Inc., 1 T. B. Poe, 5 miles southwest Winters, Gardner sand, 3,497-3,512 ft., 137 bbl. oil, TD 3,512 ft.

WHEELER, NORTHWEST - ELLENBURGER—Winkler, April; Phillips Petroleum Co. 1 R. F. Waddell, SW SE 5-B7-PSL, 15 miles east Kermit, 1 mile northwest Wheeler field, Ellenburger, 10,735-775 ft., 1,361 bbl. oil, TD 10,775 ft.

WILLIS—Runnels, July; J. D. Andrews 1 Ray V. Willis, G. Hancock Survey 437, 6 miles southwest Lawn, Serrat sand, 2,670-90 ft., 131 bbl. oil, TD 2,690 ft. 6 wells at year end.

WILSHIRE—Irion, October; Wilshire Oil Co., Inc., 1-A Brooks, 21-3-H&TC, 13 miles north Tankersly Strawn field, lower Per-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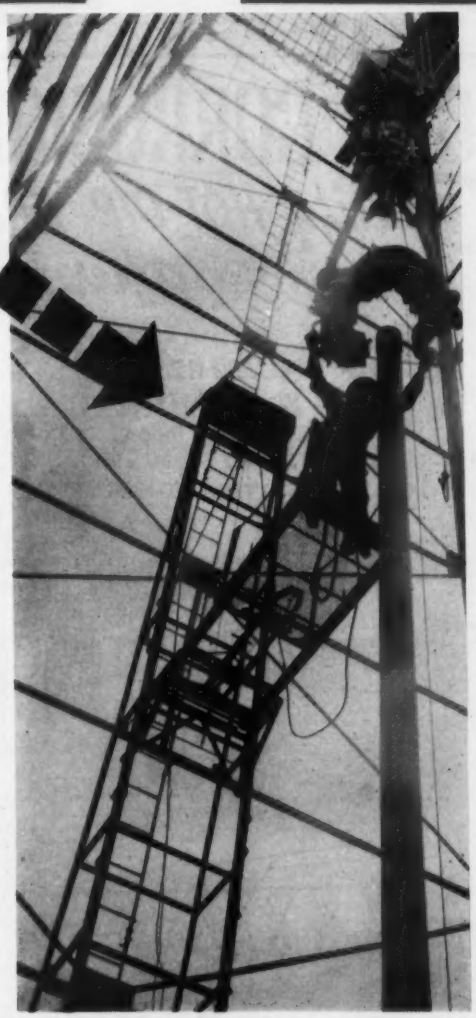

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UNNAMED—Crockett, November; Malco Refineries, Inc., 1 Archie Bean, 14-UV-GC&SF, 2 miles southwest Vaughn field, pay 1,353-59 ft., 75 bbl. oil, TD 1,359 ft.

UNNAMED—Dawson, November; Standard Oil Co. of Texas 1 Mrs. M. V. A. Smith, 34-C41-PSL, 4 miles southwest O'Donnell, lower Spraberry sand, 7,940-83 ft., 73 bbl. oil, TD 9,685 ft.

UNNAMED—Runnels, November; A. J. Renn Trustee 1 D. O. Kennedy, J. H. Wilson Survey, 7 miles northeast Ballinger, Serratt sand, 2,314-18 ft., 123 bbl. oil, TD 2,318 ft.

UNNAMED—Schleicher, December; Frank & George Frankel 1 R. S. Williams, Section 26, HE&WT, 12 miles southeast Mertzon, Permian, 4,288-4,305 ft., 298 bbl. oil, TD 5,620 ft.

UNNAMED—Upton, December; Sinclair Oil & Gas Co. 1 G. R. Davis, 20-41-5S-T&P, 5½ miles southwest Pegasus field, Ellenburger, 13,165-178 ft., 174 bbl. oil, TD 13,363 ft.

NEW PAYS

ABELL-PERMIAN—Pecos, February; Magnolia Petroleum Co. 4-A State-Myrick account 2, C. Myrick Survey, Clear Fork, 3,355-65 ft., 63 bbl. oil, TD 3,850 ft. 6 wells at year end.

ABELL, NORTH—Pecos, March; G. T. Abell 1-A-29 E. A. Hall, Lot 5, Section 29, Block 9, H&GN, San Andres, 2,395-2,414 ft., 76 bbl. oil, TD 2,414 ft. 4 wells at year end.

ANDERSON—Garza, February; P. W. & R. S. Anderson 1-46 J. S. Anderson, 46-6-H&GN, San Andres, 2,422-43 ft., 83 bbl. oil, TD 2,443 ft. 2 wells at year end.

BALLINGER, WEST—Runnels, October; C. O. Davis and J. S. King 1 I. M. Turner, J. Trussel Survey, 1 mile north Morris-sand discovery, King sand, 3,076-86 ft., 816 bbl. oil, TD 3,086 ft.

BENEDUM—Upton, April; Republic Natural Gas Co. 2-B Rosa Halff Barnett, SW SW NE 40-Y-TCRR, Spraberry, 7,500-39 ft., 33 bbl. oil, TD 7,540 ft.

BIG LAKE—Reagan, July; Stanolind Oil & Gas Co. 1-BL University, NW SW 1-2-University lands, Fusselman, 8,879-8,940 ft., 257 bbl. oil, TD 8,940 ft.

BLOCK 31-CLEAR FORK—Crane, May; Beard & Tullos, Inc., 1 University, 23-31-University lands, ½ mile east Devonian production, Clear Fork, 4,275-4,343 ft., 174 bbl. oil, TD 4,343 ft. 3 wells at year end.

COGDELL-4,900 FT.—Kent, April; Chapman & McFarlin 6 D. M. Cogdell, 716-97-H&TC, north side of field, Wolfcamp, 4,906-30 ft., 1,233 bbl. oil, TD 4,970 ft. 2 wells at year end.

CORDONA LAKE-TUBB—Crane, September; Gulf Oil Corp. 3-T Jax M. Cowden, Section 7, Juan Cordona Survey, Tubb, 10 bbl. oil, TD 5,570 ft. 9 wells at year end.

EAST POLAR-STRAWN—Kent, September; Kewanee Oil Co. 2-D Wil, 3-4-H&GN, lower Strawn, 7,192-7,291 ft., 950 bbl. oil, TD 7,443 ft. 2 wells at year end.

EMMA-HOLT—Andrews, October; Forchail Oil Co. 3 Emma Cowden, 1-44-2N-T&P, Holt, 5,122-46 ft., 50 bbl. oil, TD 5,146 ft., OWDD.

FORT CHADBOURNE-ELLENBURGER—Coke, October; Humble Oil & Refining Co. 1 Odom-State, J. Hendry Survey 2, Ellenburger, 5,690-5,700 ft., 22 bbl. oil, TD 5,798 ft. 2 wells at year end.

FUHRMAN-GLORIETTA—Andrews, May; Fuhrman Petroleum Co. 17 W. T. Ford, 16-A-43, PSL, Glorietta, 5,592-5,612 ft., 250 bbl. oil, TD 5,612 ft., OWDD.

GOLDSMITH-LOWER CLEAR FORK—Ector, July; Amcan Oil Corp., Inc., 1-D B. H. Blakney, 14-A-PSL, lower Clear Fork, 6,150-6,200 ft., 360 bbl. oil, TD 6,270 ft.

KELLY-SNYDER—Scurry, January; Sun Oil Co. 2 Mae Lemons, 205-97-H&TC, Strawn, 7,643-80 ft., 110 bbl. oil, TD 7,680 ft.

LANDON-BEND—Cochran, June; Stanolind Oil & Gas Co. 3 B. T. Brown "A," 14-L-PSL, Bend sand, 10,120-75 ft., 292 bbl. oil, TD 11,703 ft.

LAWSON SIMPSON—Ector, March; Gulf Oil Corp. 542 C. A. Goldsmith, 45-44-1S-T&P, San Andres, 4,320-40 ft., 69 bbl. oil, TD 4,340 ft. 15 wells at year end.

NOELKE—Crockett, February; M & M Production Co. 2-B Bouscaren, 29-CG-HE&WT, upper Clear Fork, 3,943-61 ft., 88 bbl. oil, TD 7,290 ft. 3 wells at year end.

OGDEN-MABEE—Runnels, March; E. K. & E. M. Burt and D. F. Stephenson 2 Malinda Jameson, ETRR Survey 118, 1½ miles northwest Talpa, Fry sand, 3,388-90 ft., 122 bbl. oil, TD 3,390 ft. 9 wells at year end.

PARKER, WEST - WICHITA - ALBANY—Andrews, January; Humble Oil & Refining Co. 39 J. E. Parker Account 8, 1-A54-PSL, Wichita-Albany, 6,940-7,125 ft., 28 bbl. oil, TD 9,144 ft.

PULLIAM-PALO PINTO—Tom Green, November; Sun Oil Co. 4 Linthicum, Section 1, AB&M Survey, Palo Pinto, 5,068-5,243 ft., 126 bbl oil.

RAMBO AND STEPHENS—Runnels, January; James E. Kemp 1 M. J. Adams, Section 13, C. D. Skidmore Survey, Fry sand, 4,373-89 ft., 588 bbl. oil, TD 4,590 ft. 4 wells at year end.

ROBERTSON-ELLENBURGER AND DEVONIAN—Gaines, January; Samedan Oil Corp. 1-D-E-A Andrews, 19-A24-PSL, Ellenburger, 11,900-60 ft., 262 bbl. oil, Devonian, 10,056-70 ft., 254 bbl. oil, TD 12,090 ft.

SHAFTER LAKE-PENNSYLVANIAN—Andrews, January; Sinclair Oil & Gas Co. 12-154 University, 24-13-University Lands Survey, Pennsylvanian, 8,500 ft., 104 bbl. oil, TD 11,945 ft. 2 wells at year end.

SWEETIE PECK—Midland, June; General American Oil Co. 1-D Josie Faye Peck, 21-41-4S-T&P, Devonian, 12,215-12,410 ft., 611 bbl. oil, TD 12,410 ft.

TEX HARVEY—Midland, January; Harry B. Lake 1 Hugh Dixon, 9-37-T3S-T&P, Spraberry sand, 7,087-7,317 ft., 456 bbl. oil, TD 7,317 ft. 35 wells at year end.

TUCKER-TUBBS—Crane, May; Jergins Oil Co. 2 M. D. Self-State, 20-1-H&TC, lower Clear Fork, 4,167-73 ft., 52 bbl. oil, TD 5,815 ft. 6 wells at year end.

VEALMOOR, EAST—Howard, July; Sunray Oil Corp. 2 W. L. Wilson, 16-37-H&TC, Wolfcamp, 6,910-60 ft., 745 bbl. oil, TD 7,476 ft.

WINTERS—Runnels, June; Humble Oil &

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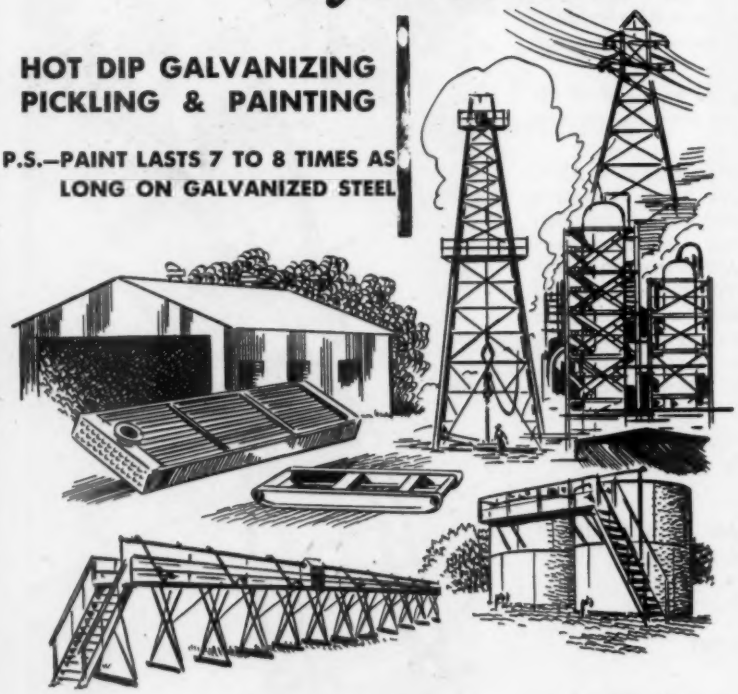

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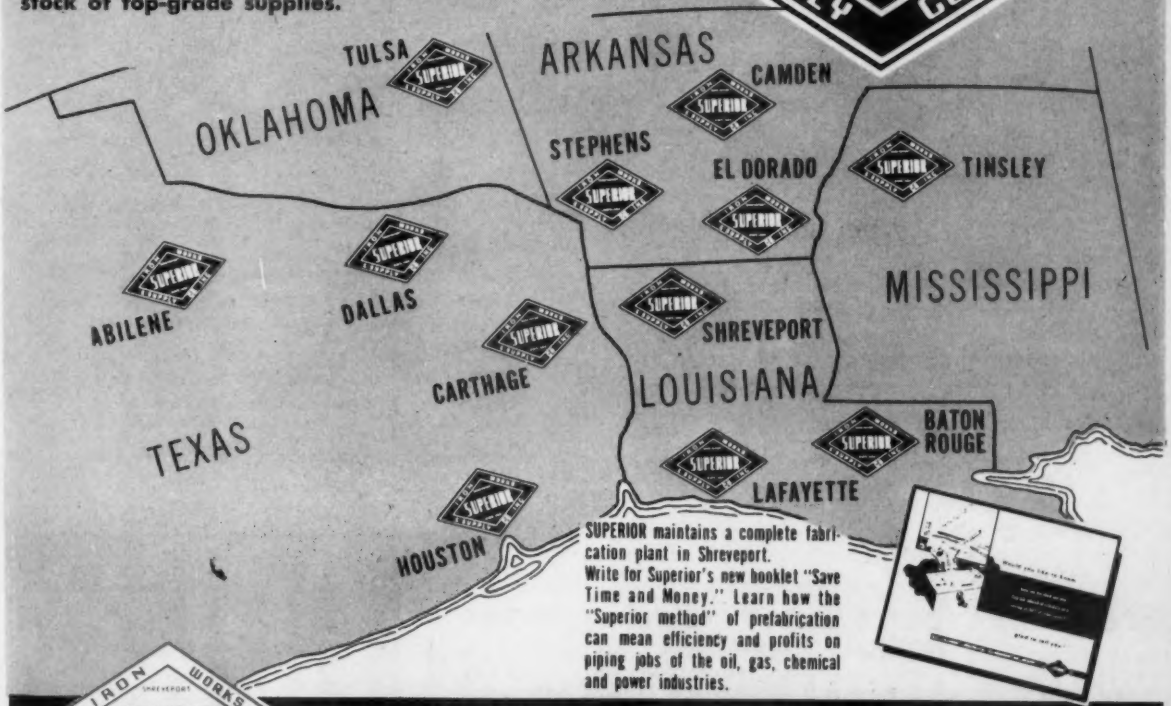

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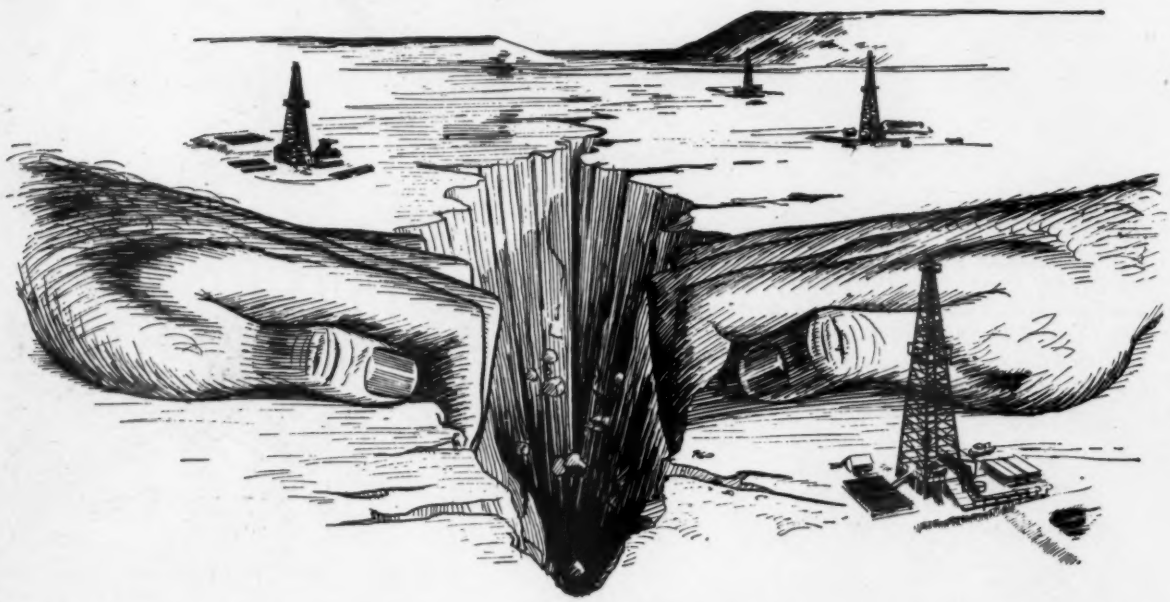

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Refining Co. 2 Bud Herndon, Section 2, B. W. Taylor Survey, Gunsight sand, 2,395-2,404 ft., 98 bbl. oil, TD 3,964 ft. 19 wells at year end.

YARBROUGH AND ALLEN—Ector, October; Amerada Petroleum Corp. 1 Carlinville National Bank, Waddell sand, 10,110-30 ft., 227 bbl oil, TD 10,710 ft. 12 wells at year end.

TEXAS PANHANDLE

District 10

NEW POOLS

WILLCLO—Sherman, January; Phillips Petroleum Co. 1 Willclo, 15-3T-T&NO, southeast corner of county, Pennsylvanian, 5,844-80 ft., 225 bbl. oil.

UNNAMED—Gray, December; Phillips Petroleum Co. 1 Wheatley, 3-C2-CCSDRG&-NG Survey, Permian, 2,833-70 ft., 5,250,000 cu. ft. gas.

UNNAMED—Gray, December; Phillips Petroleum Co. 1 Wheat, 5-C2-CCSDFG&NG Survey, Permian, 2,759-2,868 ft., 114 bbl. oil, TD 2,887 ft., PB 2,868 ft.

UNNAMED—Sherman, January; Stanolind Oil & Gas Co. 1 Lasley, 126-1C-GH&H, Permian, 2,992-3,145 ft., 15,491,000 cu. ft. gas.

UNNAMED—Sherman, January; Stanolind Oil & Gas Co. 1 Ransdell, 125-1C-GH&H, 8 miles northeast Coldwater, Permian, 2,902-3,130 ft., 19,008,000 cu. ft. gas.

SOUTHEAST NEW MEXICO

NEW POOLS

BOUGH, EAST—Lea, January; Magnolia Petroleum Co. 1 Walker-Federal, SW SW 8-9s-36e, Pennsylvanian, 9,715-29 ft., 501 bbl. oil, TD 9,729 ft.

CHISUM—Chaves, April; Honolulu Oil Corp. 1 Texas Co.-State, NE SE 13-11s-27e, 18 miles southeast Roswell, Devonian, 6,490-6,563 ft., 170 bbl. oil, TD 6,933 ft.

HOBS, EAST—Lea, February; Stanolind Oil & Gas Co. 1-A Anna Foster, NW SE 23-19s-38e, 2 miles southeast Hobbs field, Drinkard, 7,312-7,560 ft., 44 bbl. oil, TD 8,021 ft.

LIGHTCAP—Chaves, May; Magnolia Petroleum Co. 1 Lightcap Land Co., SE SE 6-8s-30e, Devonian, 7,960-76 ft., 492 bbl. oil, TD 7,978 ft.

SAUNDERS—Lea, January; Gulf Oil Corp. 1 Mrs. Maud Saunders, SE SW 34-14s-33e, Pennsylvanian, 9,865-82 ft., 984 bbl. oil, TD 13,235 ft.

UNNAMED—Chaves, December; Magnolia Petroleum Co. 1-B C. L. O'Brien, 1-9s-28e, 9 miles southwest Lightcap field, Devonian, 7,253-59 ft., 270 bbl. oil, TD 7,666 ft.

UNNAMED—Chaves, December; Earl G. Levicks 1 State, 7-8s-27e, San Andres, 1,960-90 ft., 5 bbl. oil, TD 1,990 ft.

UNNAMED—Eddy, April; Leonard Oil Co. 1 Keohane-Federal, SW SW SW 6-19s-30e, 2 miles east Turkey Track field, pay 2,228-44 ft., 30 bbl. oil, TD 2,250 ft.

UNNAMED—Eddy, December; Martin Yates, Jr. 1 Featherstone-State, 32-19s-27e, Queen sand, 349-361 ft., 50 bbl. oil, TD 361 ft.

UNNAMED—Lea, February; Plains Production Co. 1 Scarborough-Shell, SE NW 24-26s-37e, Queen sand, 3,250-3,440 ft., 330 bbl. oil, TD 3,440 ft.

NEW PAYS

DENTON—Lea, February; Atlantic Refining Co. 1-B Dickenson, NW SW 12-15s-37e, Wolfcamp, 9,395-9,414 ft., 177 bbl. oil, TD 9,420 ft.

HOUSE—Lea, January; Stanolind Oil & Gas Co. 1 D. E. House, SW SE 11-20s-38e, ½ mile south discovery, San Andres, 4,276-96 ft., 99 bbl. oil, TD 4,440 ft.

HOUSE—Lea, May; Union Oil Co. of California 1 C. H. Kyte, W½ NW SW 5-20s-39e, 1 mile east production, San Andres, 4,350-4,410 ft., 153 bbl. oil, TD 7,738 ft.

MALJAMAR—Lea, May; Buffalo Oil Co. 20-P Mitchell "B," NE SE 19-17s-32e, Paddock, 5,270-86 ft., 163 bbl. oil, TD 5,286 ft.

SKAGGS—Lea, March; Continental Oil Co. 2-B-28 Warren, 28-20s-38e, 1 mile east Continental 1-B-29 Warren (McKee sand discovery), Drinkard, 6,764-6,804 ft., 197 bbl. oil, TD 9,072 ft.

TEAGUE—Lea, February; Gulf Oil Corp. 11 LaMunyon, NE NW 27-23s-37e, Ellenburger, 9,700-50 ft., 396 bbl. oil, TD 9,844 ft.

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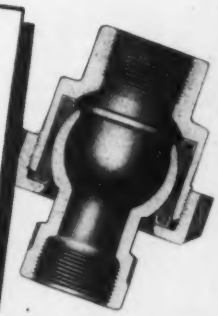

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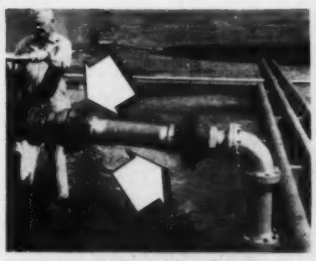

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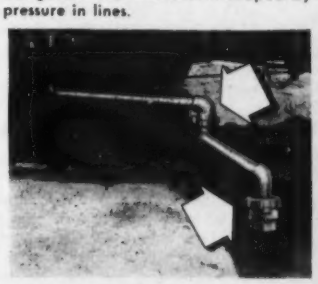

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NORTH LOUISIANA

NEW POOLS

ALABAMA BEND—Bienville, September; E. C. Cook 1 W. C. Locke, 9-15n-10w, Paluxy, 2,782-2,802 ft., 69 bbl. oil, TD 2,802 ft. 2 wells at year end.

DEER PARK—Concordia, August; Carter Oil Co. 1 R. A. Graham, 48-5n-9e, Wilcox sand, 5,980-86 ft., 360 bbl. oil, TD 6,710 ft.

ESPERANCE POINT—Concordia, September; Sinclair Oil Co. 1 A. H. Campbell, 7-5n-9e, Wilcox, 6,326-29 ft., 288 bbl. oil, TD 7,007 ft. 2 wells at year end.

FAIRVIEW—Concordia, December; Sinclair Oil & Gas Co. 1 R. B. Sharp, 10-4n-9e, Wilcox, 6,697-6,708 ft., 268 bbl. oil, TD 7,496 ft.

GRAND CANE (REVIVED)—DeSoto, October; Lyons, Prentiss & McCord 1 Sue Chaffin, SW SW SE 4-12n-14w, Paluxy, 2,949-54 ft., 87 bbl. oil, TD 3,302 ft.

GREENWOOD—Caddo, January; Plymouth Oil Co. 1 Thigpen-Herold, NE NE SE 12-17n-16w, Rodessa, 4,779-4,803 ft., 30 bbl. oil, TD 6,503 ft. 10 wells at year end.

HAYNESVILLE, SOUTHEAST—Claiborne, February; Ohio Oil Co. and Gulf Oil Corp. 1 O. L. Martin, NE SE 3-22n-7w, Cotton Valley, 8,852-8,902 ft. and 9,025-80 ft., 40 bbl. oil, TD 11,757 ft.

LAKE BRUIN—Tensas, July; D. M. Lide 1 State-Harris unit, 40-12n-12e, sand, 8,897-8,907 ft., 100 bbl. condensate, TD 8,910 ft.

NEWELLTON—Tensas, December; D. M. Lide 1 Mrs. H. L. Jacoby, 1-12n-12e, Tuscaloosa, 8,806-16 ft., 204 bbl. condensate, TD 8,820 ft.

POOL LAKE—Catahoula, November; Pan Am Southern Corp. and Austin Stewart 1 Lucille Gillis, 14-8n-7e, Wilcox, 4,638-39 ft., 97 bbl. oil, TD 6,512 ft.

SALINE LAKE, NORTH—LaSalle, November; Hunt Oil Co. and Gulf Refining Co. 25 Louisiana Delta, 25-5n-4e, Wilcox, 5,481-86 ft., 210 bbl. oil, TD 6,005 ft. 3 wells at year end.

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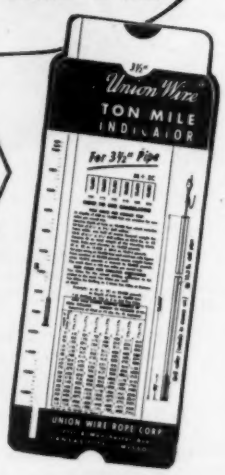

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UNIONVILLE—Lincoln, May; Southwest Natural Producing Co. 1 Mrs. M. E. Colvin, NW NW SE 31-20n-2w, Cotton Valley, 8,738-56 ft., 150 bbl. distillate, TD 9,003 ft. 3 wells at year end.

VIRGIN BEND—Grant, November; Justiss-Mears Oil Co. 1 M. Erwin, 27-6n-2e, Sparta, 2,424-30 ft., 28 bbl. oil, TD 5,205 ft.

UNNAMED—Natchitoches, November; D. B. McConnell 1 T. J. Wilkerson, 30-11n-10w, Fredericksburg, 2,810-30 ft., 30 bbl. oil, TD 2,830 ft.

UNNAMED—Richland, August; United Carbon Co. 1 J. L. Pipes, 35-17n-6e, Tuscaloosa, 2,290-2,418 ft., 11,041,000 cu. ft. gas, TD 2,418 ft.

UNNAMED—Union, January; Brooks 1 Nelson, 29-23n-3w, 9 miles northeast Lisbon field, Smackover, 9,320-26 ft., 114 bbl., TD 9,805 ft.

UNNAMED—Webster, April; Hunt Oil Co. and Stanolind Oil & Gas Co. 1 Lee Walker, 2-23n-10w, Pettit, 5,730-81 ft., 77 bbl. oil, TD 12,200 ft.

SOUTH LOUISIANA

NEW POOLS

BARATARIA, SOUTH—Jefferson, February; The California Co. 17 Fleming Plantation, 1-16s-23e, TD 10,395 ft., Miocene, 8,452-62 ft., 195 bbl. oil.

BAYOU WHITE—Pointe Coupee, March; The Texas Co. 1 Lillie Boudreaux et al., 30-5s-8e, 1½ miles NW Fordoche field, TD 10,003 ft., Frio, 7,981-86 ft., 206 bbl. oil. 2 wells at year end.

BLOCK 8—Cameron, March; (offshore) Magnolia Petroleum Co. A-1 State Lease 1,120, 11-15s-11w, TD 10,940 ft., Miocene, 10,806-14 ft., 27 bbl. condensate.

BLOCK 125—St. Mary, April; (offshore 25 miles) Magnolia Petroleum Co. A-1 State Lease 694, TD 11,672 ft., Miocene, 11,648-58 ft., 614 bbl. oil.

BURTVILLE—East Baton Rouge, August; Shell Oil Co. 1 Vivian J. Gianelloni, 47-8s-1e, TD 12,100 ft., Marginulina-Texana, 10,876-90 ft., 370 bbl. oil.

CAMERON, EAST - BLOCK 1—Cameron January; (offshore) Phillips Petroleum Co. A-2 Cameron State Lease 1,170, TD 11,890 ft., pay, 1,671-74 ft., 600,000 cu. ft. gas.

COX BAY—Plaquemines, October; Richardson & Bass 2-H State 1794-Orleans Levee District, 5-18s-16e, TD 10,954 ft., sand, 9,710-15 ft. and 9,717-20 ft., 260 bbl. oil. 3 wells at year end.

ELLIS—Acadia, May; Kirby Petroleum Co. 1 Maggie McKain Kerr, 11-9s-1w, TD 11,012 ft., Frio, 10,039-43 ft., 220 bbl. oil. 2 wells at year end.

EUGENE ISLE-BLOCK 32—St. Mary, January; (offshore) Pure Oil Co. A-1 State Lease 832, TD 12,424 ft., Miocene 9,620-28 ft., 198 bbl. oil. 3 wells at year end.

EUGENE ISLE-BLOCK 45—St. Mary, January; (offshore) Magnolia Petroleum Co. B-1 State Lease 843, TD 14,048 ft., Miocene, 9,449-51 ft., 1,350,000 cu. ft. gas.

EUGENE ISLE-BLOCK 58—Terrebonne, January; (offshore) Magnolia Petroleum Co. B-1 State Lease 673, TD 13,800 ft., Miocene, 11,206-08 ft., 7 bbl condensate

GLENMORA—Rapides, July; Texas Pacific Coal & Oil Co. 1 W. W. Elliott, 35-1s-2w, TD 10,812 ft., Wilcox, 10,698-10,713 ft., 191 bbl. oil. 5 wells at year end.

KENT BAYOU—Terrebonne, October; Union Production Co. 1 Continental Land & Fur Co., 35-17s-13e, TD 11,957 ft., Miocene, 11,085-11,104 ft., 56,000,000 cu. ft. gas.

LAKE SAND—Iberia, January; Humble Oil & Refining Co. 1 State Lease 1,706 West Cote Blanche Bay, TD 13,050 ft., Miocene, 10,005-10 ft., 36 bbl. condensate. 6 wells at year end.

LAKE MISERE—Cameron, July; Superior Oil Co. L-1 Miami Corp., 34-13s-5w, TD 13,751 ft., Miocene, 8,890-96 ft., 189 bbl. condensate. 2 wells at year end.

LOWER MUD LAKE—Cameron, September; Sohio Petroleum Co. 1 Carter-Rutherford, 21-15s-6w, TD 8,490 ft., Miocene, 6,692-6,700 ft., ungaged gas.

MAXIE—Acadia, January; Hassie Hunt trust 1 S. W. Robison et al., 31-8s-1e, TD 11,400 ft, Miocene, 10,637-42 ft., 39 bbl. condensate. 4 wells at year end.

MIDLAND—Acadia, March; Atlantic Refining Co. 1 Pearl R. Cowen, 18-10s-1w,

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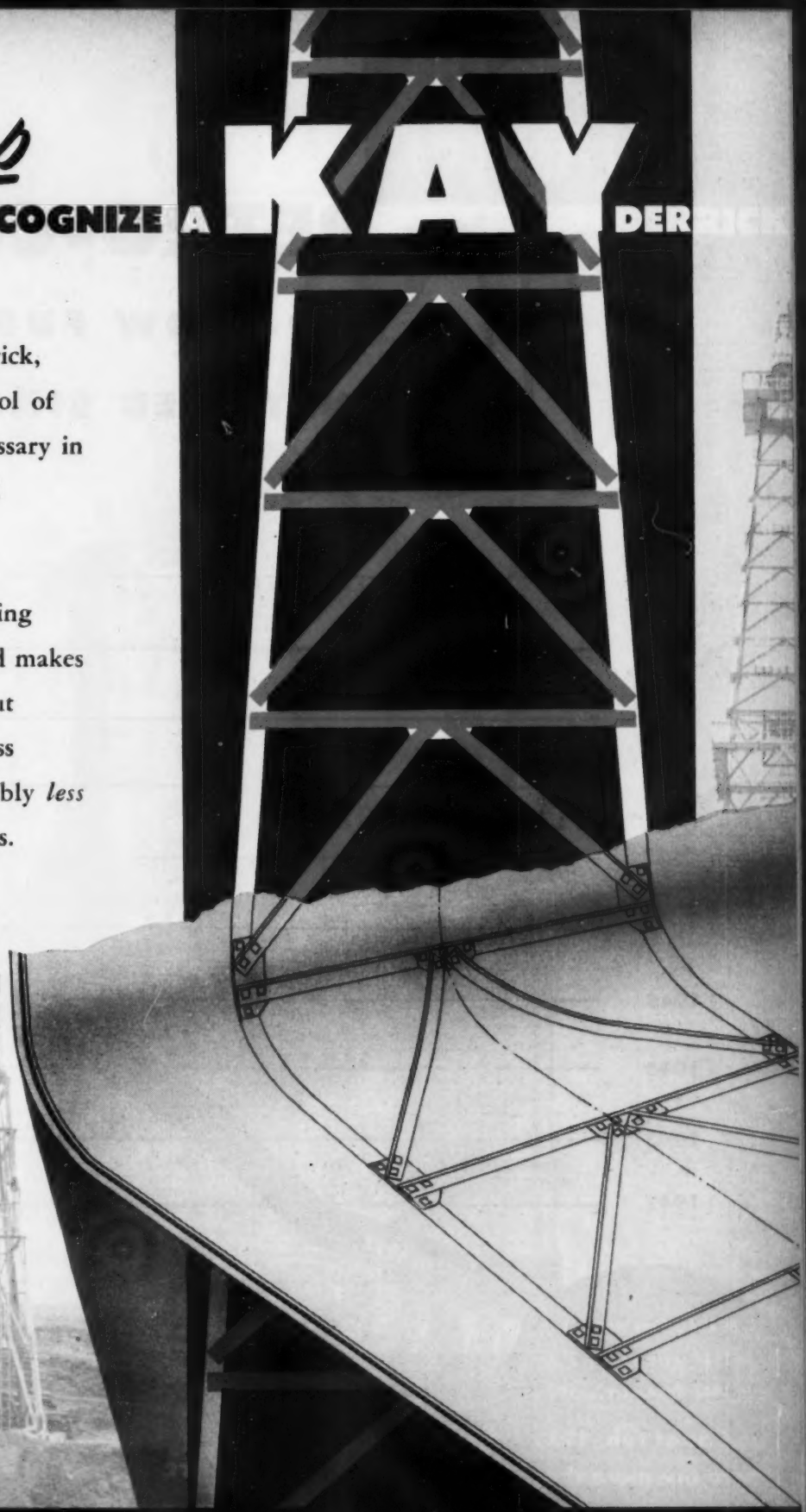

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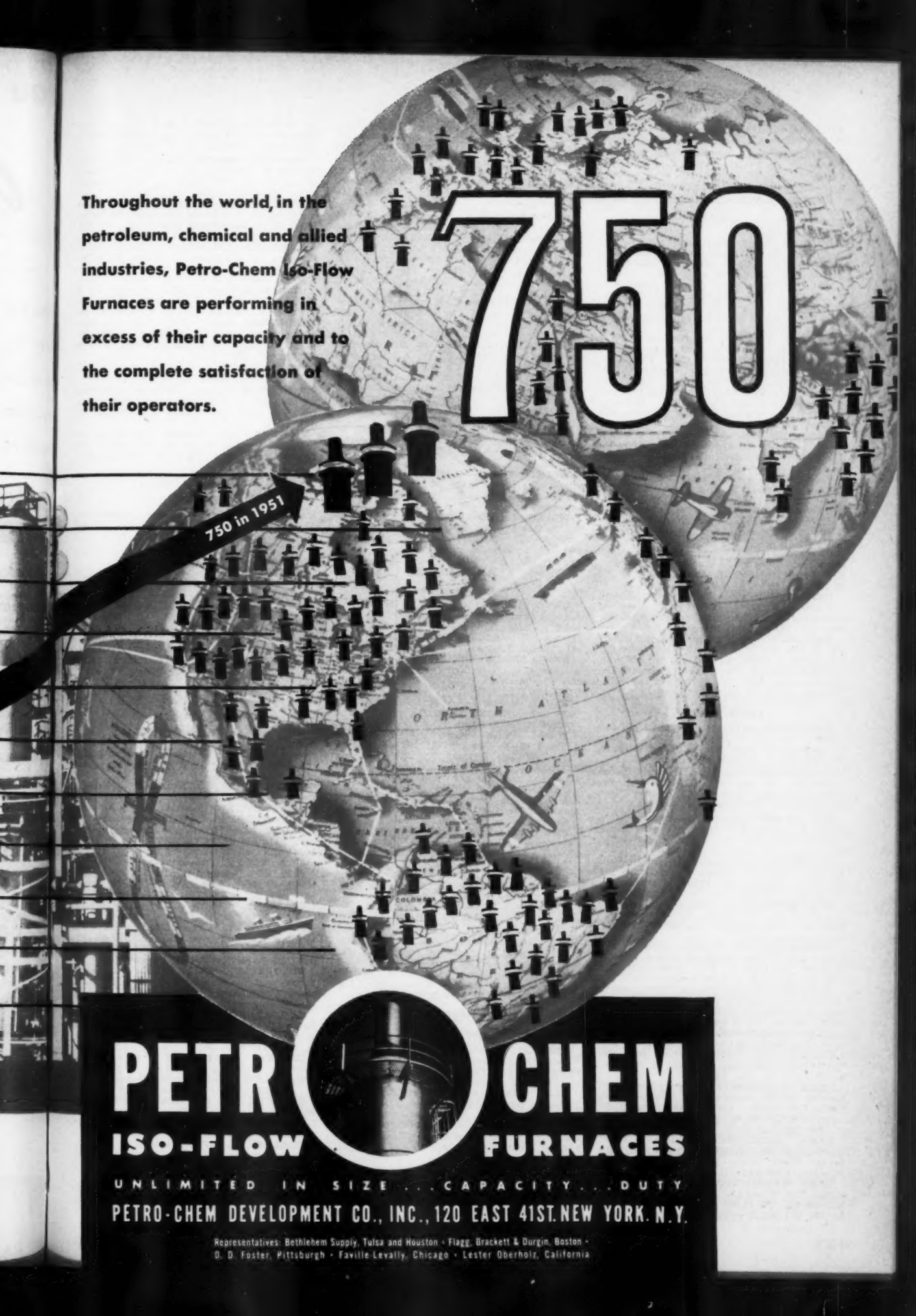
In 1940 there was . . . 1
In 1944 there were . . . 215
In 1948 there were . . . 500

and as of Feb. 1951
there are more than
750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TD 11,358 ft., Marginulina, 10,994-11,004 ft., 29 bbl. condensate.

OPELOUSAS—St. Landry, June; Magnolia Petroleum Co. 1 Alice B. Rozas, 41-6s-4e, TD 14,000 ft., sand, 11,412-22 ft., 81 bbl. condensate. 2 wells at year end.

PHOENIX LAKE—Calcasieu, March; Ohio Oil Co. 1 E. W. Brown, Jr., 20-11s-13w, TD 9,912 ft., Miocene, 7,781-82 ft., 291 bbl. oil. 4 wells at year end.

ROMERE PASS—Plaquemines, January; California Co. 1 North Main Pass unit, 22-20s-19e, TD 9,813 ft., Miocene 9,026-47 ft., 350 bbl. oil. 16 wells at year end.

SHERBURNE—Pointe Coupee, May; The Texas Co. 1 V. J. Kursweg et al., 25-6s-7e, TD 11,011 ft., Frio, 10,324-30 ft., 336 bbl. oil.

SOUTH PASS-BLOCK 24—Plaquemines, April; (offshore) Shell Oil Co. 1 State Lease 1,008, TD 12,182 ft., Miocene 6,530-34 ft., 55 bbl. oil. 2 wells at year end.

TIMBALIER, SOUTH-BLOCK 52—Terrebonne, October; (offshore) Humble Oil & Refining Co. A-3 State Lease 1,428, TD 13,015 ft., Miocene, 12,111-14 ft., 245 bbl. oil.

UNNAMED—Acadia, January; Hawkins and Jayred 1 Edmond Young, 31-7s-2w, TD 9,490 ft., Marginulina, 9,129-41 ft., 16 bbl. oil.

UNNAMED—Acadia, January; Ralph Lowe 1 Annie Laughline Young, 14-7s-1e, TD 9,122 ft., Marginulina, 8,904-08 ft., 110 bbl. oil.

UNNAMED—Acadia, December; Bates & Cornell 1 August Leonards, 29-7s-1e, TD 9,976 ft., sand, 9,953-69 ft., 330 bbl. oil.

UNNAMED—Avoyelles, December; Gulf Refining Co. 2 Ben J. Altheimer et al., 24-4n-4e, TD 6,518 ft., cand, 4,442-44 ft., 63 bbl. oil.

UNNAMED—Beauregard, January; Magnolia Petroleum Co. 1 Ragley Lumber Co., 20-5s-7w, TD 10,855 ft., Yegua, 8,250-60 ft., 12 bbl. oil.

UNNAMED—Plaquemines, May; Placid Oil Co. and The Texas Co. 1 State of Louisiana-LL&E 5, 1-21s-26e, TD 10,032 ft., Miocene, 7,824-34 ft., 178 bbl. oil.

UNNAMED—Pointe Coupee, May; Sinclair Oil & Gas Co. 1 H. M. Kimbell, 20-6s-10e, TD 11,200 ft., Frio, 9,205-07 ft., 115 bbl. oil.

UNNAMED—St. Mary, March; Sun Oil Co. 1 State Lease 1,337, 10-17s-12e, TD 11,775 ft., Miocene, 10,051-56 ft., 120 bbl. oil.

NEW PAYS

AVONDALE—Jefferson, June; American Liberty Oil Co. 1 American Liberty fee, 75-13s-22e, TD 8,225 ft., Miocene, 8,180-86 ft., 160 bbl. oil. 4 wells at year end.

BIG ISLAND—Rapides, January; Union Producing Co. and M. H. Marr 1 Beaubouef, 11-4n-3w, TD 6,960 ft., Wilcox, 5,134-36 ft., 211 bbl. oil. 18 wells at year end.

BIG ISLAND—Rapides, February; Union Producing Co. and M. H. Marr 2 Turregano, 2-4n-3w, TD 5,750 ft., Wilcox, 5,350-52 ft., 181 bbl. oil. 19 wells at year end.

BLACK BAY—Plaquemines, March; Gulf Refining Co. 5 Louisiana State Lease 195 Q, Twp. 17s-17e, TD 11,503 ft., Miocene, 10,420-30 ft., 186 bbl. oil. 4 wells at year end.

FORDOCHE—Pointe Coupee, August; The Texas Co. 2 J. W. Green, Sr., 27-6s-8e, TD 9,629 ft., Frio, 9,066-84 ft., 302 bbl. oil. 7 wells at year end.

FORDOCHE—Pointe Coupee, January; The Texas Co. 1 Mrs. R. A. P. Price Unit 2, 28-6s-8e, TD 9,200 ft., Frio, 8,868-74 ft., 136 bbl. oil. 10 wells at year end.

JEANERETTE, SOUTH—St. Mary, April; Atlantic Refining Co. 7 Joseph A. Blanchard, 37-13s-9e, TD 6,650 ft., Miocene, 5,940-46 ft., 162 bbl. oil. 3 wells at year end.

LAKE HERMITAGE—Plaquemines, January; Gulf Refining Co. 20 State Lease 707-Lafourche Basin Levee district, 3-18s-25e, TD 11,788 ft., Miocene, 11,718-40 ft., 160 bbl. oil. 3 wells at year end.

LAKE RACCOURCI—Lafourche, March; Humble Oil & Refining Co. 2 State Lease 1,480, NE corner Tract 3,419, Lake Raccourci, TD 13,780 ft., Miocene, 12,992-13,003 ft., 483 bbl. oil.

LAKE RACCOURCI—Lafourche, June; Humble Oil & Refining Co. 1 Lake Raccourci State Lease 1,451, TD 13,000 ft., Miocene, 8,970-9,010 ft., 53 bbl. condensate.

LAKE WASHINGTON—Plaquemines, October; The Texas Co. 1 State Cockrell unit 5, 8-20s-20e, TD 10,992 ft., Miocene, 10,127-38 ft., 291 bbl. oil. 3 wells at year end.

MIDLAND—Acadia, October; Sun Oil Co. and Sohio Petroleum Co. 1 LeBlanc, 55-10s-2w, TD 11,725 ft., sand, 11,574-82 ft., 110 bbl. oil.

NAPOLEONVILLE—Assumption, January; Floyd L. Karsten 1 Gus J. Labarrow, 47-12s-13e, TD 6,202 ft., Miocene, 6,040-60 ft., shut in gas well.

NAPOLEONVILLE—Assumption, July; Thomas Jordan, Inc., 1 Kessler-Sternfels, 33-12s-13e, TD 8,888 ft., Miocene, 8,820-36 ft., 48 bbl. condensate, plus 2,670,000 cu. ft. gas.

PHOENIX LAKE—Calcasieu, August; Ohio Oil Co. 3 E. W. Brown, Jr., 21-11s-13w, TD 8,066 ft., Miocene "B" sand, 7,986-90 ft., 250 bbl. oil.

QUARANTINE BAY—Plaquemines, January; Gulf Refining Co. 1 Louisiana State Lease 1,349, TD 10,745 ft., Miocene, 10,037-43 ft., 198 bbl. oil. 13 wells at year end.

SOUTH PASS-BLOCK 24—Plaquemines, June; (offshore) Shell Oil Co. 2 State Lease 1,008, Twp. 23s-31e, TD 9,688 ft., Miocene, 8,054-60 ft., 82 bbl. oil. 2 wells at year end.

TURTLE BAYOU—Terrebonne, October; Shell Oil Co. 3 Continental Land & Fur Co., 28-17s-14e, TD 14,000 ft., Miocene, 11,233-34 ft., 26 bbl. oil.

VALENTINE—Lafourche, June; Joe W. Brown 2 South Coast Corp. et al, 100-17s-20e, TD 12,548 ft., Miocene, 11,880-84 ft., 224 bbl. oil.

WEEKS ISLAND—Iberia, July; Shell Oil A-7 Weeks Island State, 13-14s-6e, TD 10,016 ft., Miocene, 3,742-50 ft., 127 bbl. oil. 2 wells at year end.

WELSH—Jeff Davis, January; Stanolind Oil & Gas Co. 1-A Ervine & Bishop, 21-9-5w, TD 6,800 ft., Miocene, 6,713-18 ft., 178 bbl. oil. 8 wells at year end.

ARKANSAS

NEW POOLS

CATESVILLE—Union, May; C. H. Murphy & Co. 1 Pepper, NE SE NE 32-18s-15w, Jones sand 7,574-80 ft., 7,603-10 ft., and 7,620-30 ft., 93 bbl. oil, Cotton Valley 6,202-10 ft., 231 bbl. oil, TD 7,902 ft. 4 wells at year end.

NEW LONDON, NORTH—Union, August; Marine Oil Co. 1 Trigg, NW NE 33-17s-12w, Cotton Valley 4,422-32 ft., 75 bbl. oil, TD 6,158 ft.

TRULL—Union, November; J. L. Foster 1 Sally Irby, NE SE 22-18s-17w, Pettit lime 4,002-06 ft., 243 bbl. oil, TD 7,885 ft., OWWO.

TUBAL—Union, February; C. H. Murphy & Co. 1 W. K. Gregory, SE SW 28-19s-18w, Cotton Valley 8,012-22 ft., 224 bbl. oil, Smackover 9,278-88 ft., 200 bbl. oil, TD 9,500 ft. 2 wells at year end.

URBANA, WEST—Union, September; Pan-Am Southern Corp. 1 Tucker, 8-18s-13w, Meakin 2,544-52 ft., 8 bbl. oil, TD 4,008 ft. 2 wells at year end.

UNNAMED—Ouachita, July; Magnolia Petroleum Co. 1 Lester "B," 31-14s-19w, Blossom sand 2,142-47 ft., 89 bbl. oil, TD 2,208 ft.

UNNAMED—Union, August; C. H. Murphy 1 Decimus, 33-18s-15w, Smackover 7,705-10 ft., 59 bbl. oil, TD 7,769 ft.

NEW PAYS

ATHENS—Claiborne, May; C. H. Murphy 1 Gessner Bailey, SE SW 36-20n-7w, Gloyd 5,310-26 ft., 55,000,000 cu. ft. gas plus 825 bbl. condensate.

CATESVILLE—Union, July; C. H. Murphy 2 Sue Olson, 32-18-15w, Smackover 7,718-20 ft., 116 bbl., TD 7,779 ft.

MISSISIPPPI

NEW POOLS

CHURCH HILL—Jefferson, October; Robert Oil Co. and Lyle Cashion 1 Davis heirs, 41-9s-2w, TD 7,081 ft., Artman (Wilcox) 5,535-37 ft., 260 bbl. oil.

GLEN AUBIN—Adams, April; J. D. Reese 1 George Armstrong, 19-5n-3w, TD 7,015 ft., Wilcox 6,588-91 ft., 49 bbl. oil.

KINGSTON—Adams, June; Plains Production Co. 1 W. C. Walker, 11-5n-2w, TD 6,804 ft., Wilcox 6,654-56½ ft., 54 bbl. oil, 3 wells at year end.

LINCOLN, WEST—Lincoln, April; Pan-Am Production Co. 1 S. J. Holloway, 23-6n-6e, TD 10,715 ft., lower Tuscaloosa 10,646-84 ft., 154 bbl. oil. 2 wells at year end.

NATCHEZ—Adams, February; Humble Oil & Refining Co. D-1 Mrs. C. L. S. McKittrick et al, 50-7s-3w, TD 10,422 ft., lower Tuscaloose 10,300-10 ft., 37 bbl. oil.

NATCHEZ, NORTH—Adams, April; Humble Oil & Refining Co. 1 James S. Giles et al, 4-7n-3w, TD 10,167 ft., lower Tuscaloosa 10,154-60 ft., 92 bbl. oil.

SIBLEY—Adams, March; Humble Oil & Refining Co. 1 Alberta Robinson, 20-5n-3w, TD 7,116 ft., Armstrong 6,406-10 ft., 190 bbl. Oil. 8 wells at year end.

UNNAMED—Adams, April; Humble Oil & Refining Co. 2 Caroline F. Blake, 23-5n-3w, TD 6,437 ft., Parker (Wilcox) 6,431-35 ft., 176 bbl. oil.

UNNAMED—Adams, April; Humble Oil & Refining Co. 1 Lucy E. Barksdale, 26-5n-3w, TD 6,581 ft., Wilcox 6,571-73 ft., 143 bbl. oil.

UNNAMED—Jones, December; Ginther-Warren-Ginther 1 L. L. Major, 20-6n-11w, TD 9,032 ft., Christmas (Eutaw) 7,348-80 ft., 80 bbl. oil.

NEW PAYS

KINGSTON—Adams, October; Stanolind Oil & Gas Co. 1 G. W. Armstrong, 11-5n-2w, TD 6,791 ft., Wilcox 6,488-90 ft., 54 bbl. oil.

PICKENS—Yazoo, February; Carter Oil Co. 1 J. L. Wilson, 30-12n-3e, TD 12,250 ft., Lower Cretaceous 7,728-37 ft., 159 bbl. oil.

TENNESSEE

NEW POOL

NORTH SPRINGS—Jackson, September; Abercrombie et al 1 Butler, SW NE SE 1-1s-45e, oil discovery, TD 1,665 ft.

ALABAMA

NEW POOLS

CARLTON, SOUTH—Clarke, May; Humble Oil & Refining Co. 1 Marion Davies et al, 15-3n-2e, TD 8,093 ft., Tuscaloosa 6,610-13 ft., 80 bbl. oil. 2 wells at end of year.

UNNAMED—Marion, February; Harry L. Cullet 1 H. V. Lewis, 23-11s-14w, TD 2,302 ft., Bethel 1,825-36 ft., 620,000 cu. ft. gas.

OKLAHOMA

NEW POOLS

ARA, NORTH—Stephens, February; (originally called "Claud"), Crosbie, Inc. 1 Evans, SE SE SW 33-1n-4w, sand, 5,032-5,127 ft., 63 bbl. oil, TD 5,130 ft. 3 wells at year end.

ARNOLDVIEW, NORTHWEST—McClain, January; Sinclair Oil & Gas Co. 1 Williams, C NW SW 18-5n-2w, bromide sand, 8,368-87 ft., 55 bbl. oil, TD 9,459 ft., OWDD.

BEBEE, NORTHEAST—Pontotoc, September; Yingling 1 Walker, SE SE NE 20-5n-5e, Viola and Hunton, 2,387-2,629 ft., 25 bbl. oil, TD 2,907 ft. 4 wells at year end.

BILLINGS, NORTHWEST—Garfield, May; Northern Oklahoma Gas Co. 1 Ensinger, SW SE SE 12-24n-3w, Mississippi lime, 4,569-4,610 ft., 1,660,000 cu. ft. gas, TD 4,876 ft.

BUCKEYE—Okfuskee, July; Herndon Drilling Co. 1 Harjo, NE NE SE 27-12n-9e, Cromwell, 3,251-58 ft., 1,500,000 cu. ft. gas, TD 3,275 ft. 3 wells at year end.

BUTTERFLY, SOUTH—Garvin, April; Steelman 1 Baldwin, SE NE NE 34-1n-1e, sand, 2,490-2,542 ft., 30 bbl. oil, TD 2,542 ft. 1 well at year end.

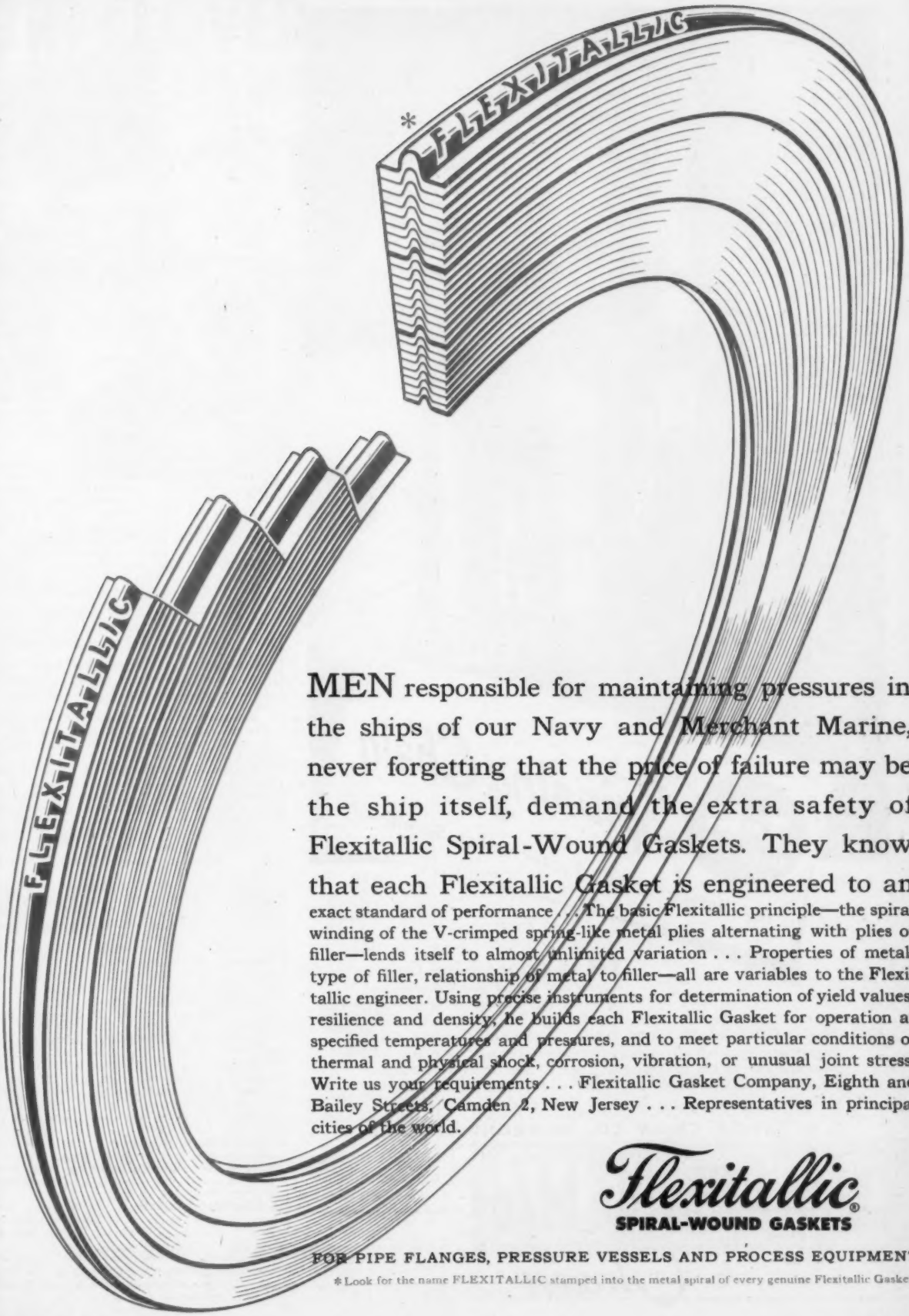
CARNEY, NORTHEAST—Lincoln, November; Wilcox Oil Co. 1 Potter, SW SW SE 21-16n-3e, Hunton, 4,670-80 ft., 7,000,000 cu. ft. gas, TD 5,004 ft.

CENTER, NORTHEAST—Pontotoc, November; Bouse & Showalter 1 Larmons, NW SW NW 16-4n-5e, conglomerate 874-99 ft., 4,830,000 cu. ft. gas, TD 899 ft.

CLOTHIER, SOUTHWEST—Cleveland, May; Brown, Bulla & Bynum 1 Seiter, NW NW SW 29-10n-2w, second Wilcox, 7,342-7,408 ft., 180 bbl. condensate, TD 7,408 ft.

CORBETT, SOUTH—Cleveland, September; Benson-Montin, Inc. 1 Pearcey, SW SW SE 30-6n-1e, fourth Deese, 5,786-5,914 ft., 56 bbl. condensate, TD 6,851 ft.

DEANER, NORTH—Okfuskee, January; Mid-Continent Petroleum Corp. 1 Fleming, SE SW NE 9-11n-11e, Wilcox, 3,694-3,708 ft.,



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DEWAR—Okmulgee, September; Pine 1 Lucas, NE NW SW 34-12n-13e, Union Valley, 2,354-66 ft., 17 bbl. oil, TD 2,485 ft.

GARDEN GROVE, SOUTHEAST—Pottawatomie, June; Gulf Oil Corp. 1 Jezek, SW SE NE 2-11n-6e, Earlsboro, 3,397-3,415 ft., 20 bbl. oil, TD 4,432 ft.

GRAYHORSE, NORTH—Osage, July; Norbla Oil Co. 1 McGagnan, NE NW NW 15-24n-6e, sand, 2,705-15 ft., 60 bbl. oil, TD 2,715 ft.

GREENVILLE—Love, February; Sohio 1 Tims, NE NE NW 32-6s-2e, Deese, 6,286-6,564 ft., 117 bbl. oil, TD 7,147 ft. 2 wells at year end.

HAPPY HILL—Lincoln, January; Falcon-Seaboard 1 Strader, SE NW NE 8-13n-3e, Bartlesville, 4,687-92 ft., 256 bbl. oil, TD 4,696 ft. 3 wells at year end.

LAFFOON, NORTHEAST—Lincoln, September; Hubbell & Webb 1 Powell, NE NE SE 5-13n-6e, Prue, 3,082-3,133 ft., 55 bbl. oil, TD 3,133 ft. 3 wells at year end.

LAMAR, EAST—Hughes, September; Deep Rock Oil Corp. 1 Eckels, NE SW NW 12-7n-11e, third Cromwell, 3,905-28 ft., 7,200,000 cu. ft. gas, TD 4,062 ft.

LAMONT, NORTHEAST—Grant, January; Anderson-Prichard 1 Hamburg, NE NE SE 21-26n-3w, Mississippi lime, 4,850-95 ft., 27 bbl. oil, TD 5,426 ft. 2 wells at year end.

LANGSTON, WEST—Logan, June; Cities Service Oil Co. and Jordan 1 Koehn, NE SE SE 8-17n-1w, Skinner, 4,930-36 ft., 19 bbl. oil, TD 5,487 ft.

LINDSAY—McClain, January; Republic Natural Gas Co. 1-X Harris, SE NW 34-5n-4w, Bromide, 10,878-11,025 ft., 425 bbl. oil, TD 11,212 ft. 2 wells at year end.

LONE GROVE—Carter, May; Parker Drilling Co. and Rockhill Oil Co. 1 Yell, NW NW NW 35-4s-1w, sand, 4,967-81 ft., 15 bbl. oil, TD 6,517 ft. 2 wells at year end.

MAHER—Oklahoma, September; Peppers Refining Co. 1 Fink (?), NW NW NW 15-13n-3w, Bartlesville, 6,360-80 ft., 25 bbl. condensate, TD 7,016 ft.

MAMMOTH—Lincoln, June; Texas Co. 2 Watson, SE NE NW 9-12n-3e, Red Fork, 4,694-4,709 ft., 42 bbl. oil, TD 4,709 ft. 4 wells at year end.

MARIETTA, NORTHEAST—Love, October; Gant and Dunlap 1 Reid, SW SW SW 2-7s-2e, sand, 6,024-60 ft., 103 bbl. oil, TD 6,248 ft.

MARKHAM, SOUTH—Payne, November; Foster Drilling Co. 1 Wilson, SW SW SE 11-18n-6e, Burgess, 3,151-57 ft., 20 bbl. oil, TD 3,157 ft.

MARSHALL, NORTH—Logan, August; Ashland Oil & Refining Co. and E. P. Baker 1 Ficken, C E½ SW NE 8-19n-4w, Wilcox, 6,374-98 ft., 33 bbl. oil, TD 6,444 ft., OWWO.

MASON (REVIVED)—Okfuskee, February; Gillespie & Son 1 Meredith, NE NE NE 10-12n-9e, Gilcrease, 3,294-3,302 ft., 40 bbl. oil, TD 3,302 ft.

MILROY, NORTH—Stephens, March; Stanolind Oil & Gas Co. 1 Truitt unit "B," SE SW NW 12-2s-4w, unconformity-Springer sand, 4,254-4,344 ft., 9 bbl. oil, TD 5,256 ft. 4 wells at year end.

MUSSON, SOUTHWEST—Pottawatomie, January; Gulf Coast Western Oil Co. 1 Rose, NE SW SW 10-10n-4e, Wilcox, 5,504-27 ft., 40 bbl. oil, TD 5,527 ft.

OSCAR, NORTH—Jefferson, March; Sun Oil Co. 1 Seay, NE SE SE 22-6s-5w, sand, 2,518-30 ft., 70 bbl. oil, TD 2,642 ft.

PAPOOSE, NORTH—Okfuskee, January; Manhart and Seismograph Service Corp. 1 Palmer, SE SE SW 27-10n-9e, Cromwell, 3,335-43 ft., 7,500,000 cu. ft. gas, TD 3,343 ft.

PARADISE, SOUTHEAST—Payne, May; Kingwood Oil Co. 1 Murphy, SW SW SE 27-18n-1e, Bartlesville, 4,782-4,816 ft., 63 bbl. oil, TD 4,829 ft.

PAXTON, EAST—Osage, April; Peters Petroleum Co. and Sand Springs Home 1 Daniels, E½ SE NW 7-22n-8e, Red Fork, 2,520-29 ft., 48 bbl. oil, TD 2,529 ft. 5 wells at year end.

PEAVINE—Oklahoma, November; Harper-Turner 1 Delay, SW SW SW 2-14n-2w, second Wilcox, 6,143-47 ft., 74 bbl. oil, TD 6,155 ft.

PECK, WEST—Lincoln, May; Creekmore-Rooney 1 James, NE NE SE 32-14n-6e, Prue, 3,073-3,113 ft., 64 bbl. oil, TD 3,113 ft. 9 wells at year end.

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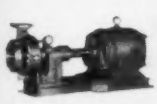

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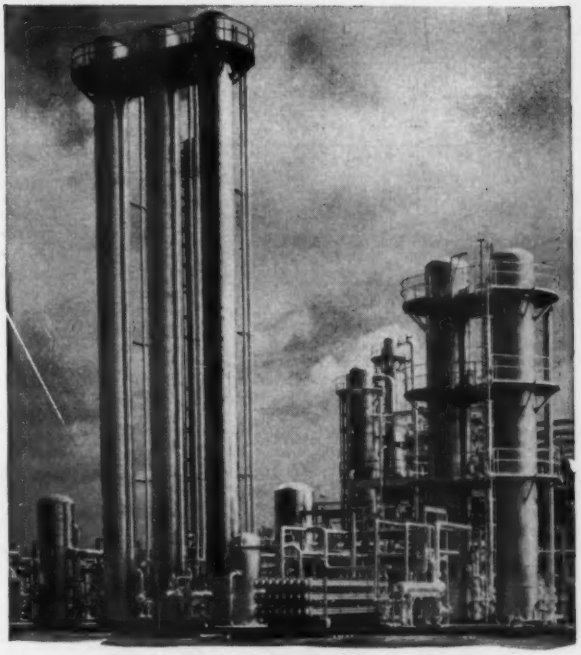

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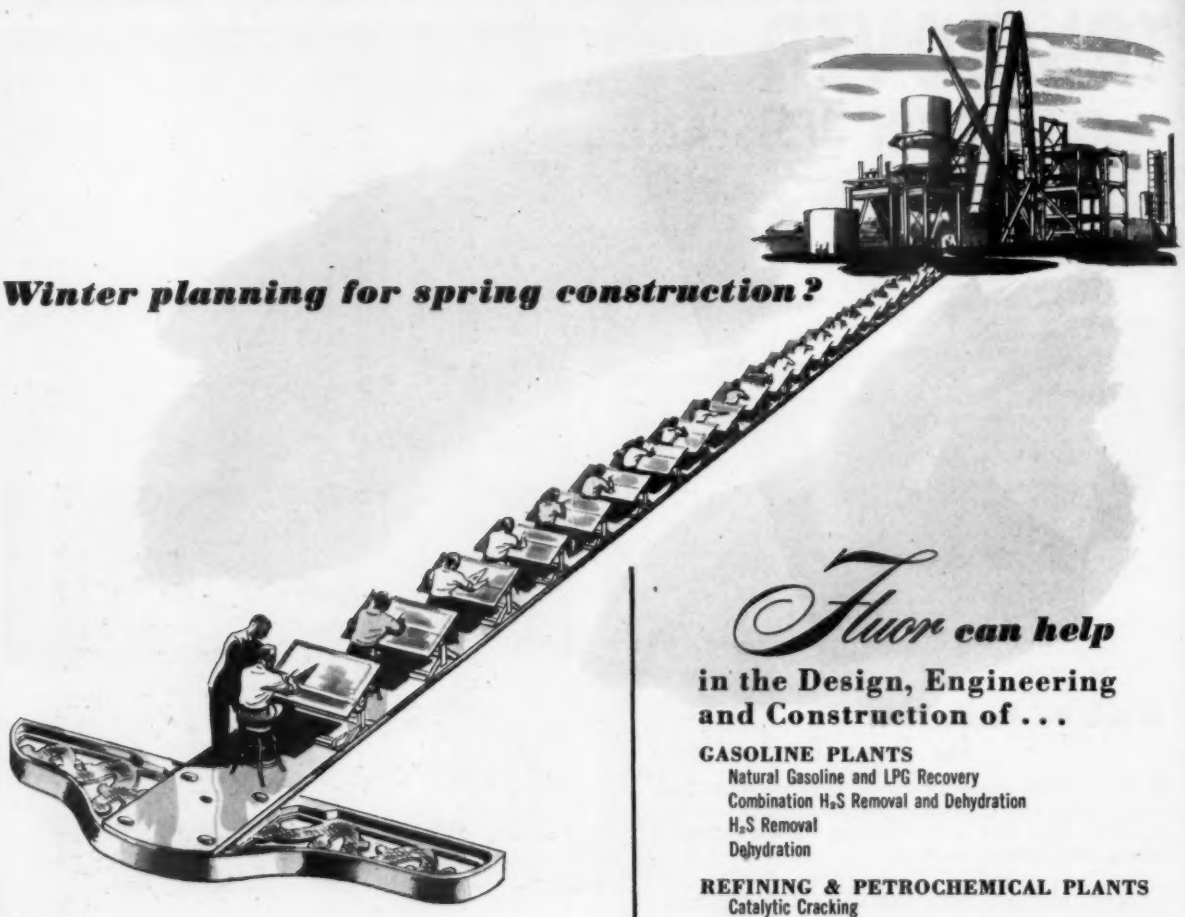

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PRAGUE, EAST—Lincoln, May; Waggoner & Williams and H & H Supply Co. 1 Kolar, SE SE NW 27-12n-6e, Prue, 3,217-36 ft., 9 bbl. oil, TD 4,515 ft.

PRAGUE, NORTHEAST—Lincoln, March; Bay Petroleum Co. 1 Brezney, SW SW NE 28-12n-6e, Hunton, 4,405-20 ft., 5 bbl. oil, TD 4,776 ft.

PRAGUE, WEST—Lincoln, December; Bibble 1 Way, NW NW SE 19-12n-6e, Hunton, 4,430-70 ft., 520 bbl. oil, TD 4,707 ft.

ROCKY, WEST—Washita, May; Carter Oil Co. et al 1 Galloway, NE NE NW 22-8n-18w, granite wash, 5,312-55 ft., 38 bbl. oil, TD 7,616 ft.

ROULETTE CREEK—Cleveland, October; Brill et al 1 Riordan, SE SE NE 16-8n-1e, sandy dolomite and second Wilcox, 6,417-29 ft., 343 bbl. oil, TD 6,429 ft.

ROVER, NORTH—Pottawatomie, February; Delong 1 Hudson, NE NW NE 16-6n-3e, Layton, 3,060-65 ft., 163 bbl. oil, TD 3,143 ft. 6 wells at year end.

SALT FORK, SOUTHWEST—Grant, July; Sunray Oil Co. et al 1 Kelley, SW SW SW 27-25n-4w, Wilcox, 6,027-47 ft., 18 bbl. oil, TD 6,168 ft.

SCHLEGEL, SOUTHEAST—Payne, April; Berry 1 Davenport, SE SW NE 34-18n-6e, Layton, 1,868-76 ft., 10 bbl. oil, TD 1,878 ft. 2 wells at year end.

SHELL LAKE, NORTH—Osage, February; Waite Drilling Co. et al 1 Channing, SW SW SW 7-20n-11e, Burgess, 2,122-34 ft., 50 bbl. oil, TD 2,136 ft.

SKEDEE, WEST—Pawnee, June; R. S. Shade 1 Coiclazier, E½ NE SW 15-22n-5e, Wilcox, 3,541-44 ft., 288 bbl. oil, TD 3,544 ft. 2 wells at year end.

SOONERVILLE, EAST—Lincoln, March; Mohawk Drilling Co. et al 1 Malloy, NW NW NW 30-17n-5e, dolomite, 4,188-4,212 ft., 25 bbl. oil, TD 4,250 ft.

SPARKS, EAST—Lincoln, June; McLean, Allen, Allied Materials, and Halko 1 North, SW SE NW 9-13n-5e, Prue, 3,508-24 ft., 178 bbl. oil, TD 3,524 ft. 34 wells at year end.

SPARKS, SOUTHEAST—Lincoln, October; Delaney Drilling Co. 1 Lytle, NE NE SE 17-13n-5e, Prue, 3,535-56 ft., 44 bbl. oil, TD 3,556 ft.

STARR VALLEY—Payne, October; Elson 1 Hesser, NE NE SW 4-19n-3e, conglomerate, 3,508-22 ft., 82 bbl. oil, TD 4,543 ft.

STELLA, EAST—Cleveland, July; Gulf et al 1 Wilson est., NE NW NE 27-10n-1e, dolomite, 6,072-78 ft. and 6,109-19 ft., 988 bbl. oil, TD 6,285 ft.

SUNFLOWER—Lincoln, May; Coronado Oil Co. 1 Kriel, SW SW NW 20-14n-2e, lower Skinner, 4,872-82 ft., 42 bbl. oil, TD 5,007 ft. 2 wells at year end.

TERLTON, EAST—Pawnee, November; Trigg Drilling Co. 1 Weirs, SE SE NW 21-20n-8e, Red Fork, 2,563-79 ft., 3 bbl. oil, TD 2,623 ft.

UNION, SOUTH—Kiowa, March; Hudspeth et al 1 Annis, SW SE SW 26-7n-20w, quartzite conglomerate, 983-85 ft., 10 bbl. oil, TD 985 ft.

VALLEY GROVE, SOUTHEAST—Okfuskee, November; Kingery & Patterson 1 Seran, SE SW NW 12-12n-8e, Union Valley lime, 3,343-61 ft., 72 bbl. oil, TD 4,161 ft.

WATERLOO, SOUTHEAST—Oklahoma, August; Ashland Oil & Refining Co. 1 Shannon, NW NW SE 6-14n-2w, Bartlesville, 5,969-90 ft., 153 bbl. oil, TD 5,990 ft. 3 wells at year end.

WASHINGTON, NORTH—McClain, August; Greenbriar Oil Co. 1 Wentzell, NE NW NW 33-8n-3w, Bromide, 10,690-10,726 ft., 333 bbl. oil. TD 11,595 ft.

WOODROW—Jefferson, March; Sun Oil Co. 1 Samuels, SW NW NW 20-6s-5w, lime, 1,870-81 ft., 88 bbl. oil, TD 1,905 ft. 8 wells at year end.

YEAGER, SOUTHEAST—Hughes, February; Barnsdall Oil Co. 1 Hughes, NE NE NE 28-8n-10e, first Cromwell, 3,320-27 ft., 5 bbl. oil, TD 3,327 ft.

UNNAMED—Cotton, August; Nixon Petroleum Co. et al 1 Poolaw, NE SE NE 29-5s-12w, second Thomas sand, 1,687-1,718 ft., 1 bbl. oil, TD 1,853 ft.

UNNAMED—Creek, July; Falcon-Seaboard 1 Kimble, NW SW SW 22-14n-10e, Misener, 3,258-64 ft., 20 bbl. oil, TD 3,394 ft.

UNNAMED—Jefferson, May; Ponder & Davis 1 Featherstone, NE NE SE 21-3s-5w, sand, 200-12 ft., 3 bbl. oil, TD 212 ft. 2 wells at year end.

UNNAMED—Lincoln, March; Slagter & Ross Mayo 1 Sukowaty, NE NE NW 14-14n-3e, Prue, 1,250,000 cu. ft. gas, TD 4,223 ft.

UNNAMED—Marshall, June; Miller Bros. et al 1 Otto Hill, SE NE NW 17-6s-6e, Arbuckle sand, 595-612 ft., 2,440,000 cu. ft. gas, TD 613 ft.

UNNAMED—Murray, January; Pennington 1 Hassen, SW SE NW 20-1n-3e, sand, 865-911 ft., 10 bbl. oil, TD 996 ft.

UNNAMED—Noble, June; Blair 1 Wisener, NW NW SE 12-23n-1w, Bartlesville, 4,394-4,441 ft., 129 bbl. oil, TD 4,441 ft.

UNNAMED—Okfuskee, December; Mohawk Drilling Co. et al 1 Foster, NE SW SE 6-13n-9e, Dutcher, 3,257-3,303 ft., 14 bbl. oil, TD 3,337 ft.

UNNAMED—Oklahoma, August; Peppers Refining Co. 1 Wegener, NW NW NW 23-13n-2w, Hunton, 6,388-6,404 ft., 45 bbl. oil, TD 6,620 ft.

UNNAMED—Pawnee, July; Welker 1 Welker, SW NE SE 23-23n-5e, Wilcox, 3,324-54 ft., 8 bbl. oil, TD 3,713 ft.

UNNAMED—Pawnee, October; Holtzman 1 Wolfe, SE SE SW 30-23n-5e, Oswego, 2,925-45 ft., 75 bbl. oil, TD 2,949 ft.

UNNAMED—Payne, July; Johnson Oil Refining Co. 1 Shinn, SE SW SW 12-17n-5e, Bartlesville, 3,418-49 ft., 2,250,000 cu. ft. gas, TD 3,449 ft.

UNNAMED—Pottawatomie, September; Barrett & Musgrove 1 Butts, NE SE NE 8-6n-4e, Earlsboro, 3,736-41 ft., 19 bbl. oil, TD 4,710 ft.

UNNAMED—Sequoyah, April; Lohman & Johnson 1 Cook, NW NW SE 8-12n-24e, sand, 1,120-85 ft., lime, 770 ft., 1,125,000 cu. ft. gas, TD 1,740 ft.

NEW PAYS

BAYOU—Carter, July; Jones Oil Co. 1 Wallace, W½ NW NW 6-5s-1w, sand, 3,385-3,528 ft., 100 bbl. oil, TD 5,028 ft. 5 wells at year end.

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CARR CITY—Seminole, December; Ashland Oil & Refining Co. 3 Wise, NW NE SW 3-8n-5e, Marshall, 4,200-10 ft., 68 bbl. oil, TD 4,215 ft.

CLOTHIER, NORTHWEST—Cleveland, July; Brown et al 1 Miller, NW NW NW 32-10n-2w, second Wilcox, 7,328-36 ft., 56 bbl. oil, Oil Creek, 7,992-8,044 ft., 320 bbl. oil, TD 8,156 ft.

CLOTHIER, SOUTHWEST—Cleveland, June; Mid-State Oil Co. 1 Trimble, SE SW NW 29-10n-2w, gas from unconformity at 6,863 ft., 174 bbl. oil from regular second Wilcox pay at 7,413 ft., TD 7,500 ft.

COFFEE CREEK—Oklahoma, January; Harper-Turner and Gulf Oil Corp. 1-A Beck, NW NW SW 15-14n-2w, Wilcox, 6,152-63 ft., 75 bbl. oil, TD 6,163 ft. 3 wells at year end.

COMANCHE LAKE, SOUTH—Stephens, September; Atkinson 1 Butts, NE NE SE 32-2s-6w, crinoidal lime, 2,287-2,313 ft., 27 bbl. oil, TD 2,324 ft.

COYLE, NORTH—Payne, May; Morgan & Johnson 1 Moorman, SE SE NW 31-18n-2e, Skinner, 4,330-40 ft., 15 bbl., TD 5,096 ft.

CUSHING, EAST—Creek, February; Big Four Petroleum Co. 1 Koch, C SW NW 36-18n-7e, Misener, 3,559-72 ft., 125 bbl. oil, TD 3,572 ft. 4 wells at year end.

FOX-GRAHAM—Carter, October; Samedan 6 Ferguson, SW SW NE 33-2s-3w, Springer, 5,690-5,814 ft., 102 bbl. oil, TD 5,896 ft. 3 wells at year end.

GARDEN GROVE, NORTH—Okfuskee, May; Josaline 1 Southerland, NW SE SE 19-12n-7e, Skinner, 3,116-42 ft., 19 bbl. oil, TD 3,151 ft.

GARR, NORTH—Pawnee, September; Deardorf 1 Gould, NE SW NW 33-20n-5e, Peru, 2,847-60 ft., 180 bbl. oil, TD 2,860 ft. 2 wells at year end.

GARR, SOUTH—Payne, July; Woods Drilling 8 Burger, SE SW SE 17-19n-5e, second Wilcox, 3,871-83 ft., 140 bbl. oil, TD 3,885 ft. 2 wells at year end.

GOLDSBY, SOUTHWEST—McClain, March; Danciger 1 Moyer, C SW SE 35-8n-3w, Joins sand, 10,180-83 ft., 372 bbl. oil, TD 10,260 ft.

GOTEBO, SOUTH—Kiowa, September; Creel & Sons 1 Stamatie, NW NW NW 34-7n-16w, sand, 444-51 ft., 6 bbl. oil, TD 460 ft.

HAPPY HILL—Lincoln, March; Davon 1 Jordan, SW NW NW 9-13n-3e, Oswego lime, 4,156-94 ft., 14 bbl. oil, TD 4,725 ft.

HAPPY VALLEY—Lincoln, June; Comail 1-A Haskins, SW SW SW 19-17n-6e, Prue, 2,939-59 ft., 5 bbl. oil, TD 3,400 ft., OWWO. 3 wells at year end.

KNOX, SOUTHEAST—Stephens, August; Miller 2 Hefner, SE SW SE 11-2n-5w, sand, 2,528-38 ft., 20 bbl. oil, TD 3,051 ft.

LANGSTON, SOUTH—Logan, January; Alpha Petroleum Co. and Jordan 1 Hargrove, NE SE NE 1-16n-1w, Misener, 5,072-92 ft., 200 bbl. oil, TD 5,092 ft.

LANGSTON, SOUTH—Logan, May; Alpha Petroleum Co. and Jordan 1 Kemp, NE NE SE 1-16n-1w, conglomerate, 4,302-16 ft., 50 bbl. oil, TD 5,096 ft. 2 wells at year end.

LAWTON—Comanche, March; Guebert & Heller 1 Woods, SE NW NW 23-2n-11w, limy sand, 280-302 ft., 131,000 cu. ft. gas, TD 305 ft.

LONE GROVE, SOUTHWEST—Carter, February; Blaylock 1 Duke, SW NE NW 5-5s-1w, Oil Creek, 4,368-77 ft., 60 bbl. oil, TD 4,377 ft. 2 wells at year end.

LONE GROVE, SOUTHWEST—Carter, December; Gibson 1 Sullivan, NW NE SE 5-5s-1w, Arbuckle, 4,822-79 ft., 152 bbl. oil, TD 5,199 ft.

LUCIEN—Noble, June; Bay Petroleum 1 Ferguson, N½ NW SW 34-20n-2w, Perry sand, 3,611-28 ft., 60 bbl. oil, TD 3,628 ft. 2 wells at year end.

LUCIEN—Noble, September; Berry 2 Frederick, SE SE NE 33-20n-2w, second Tonkawa, 3,102-14 ft., 3,721,000 cu. ft. gas, TD 3,670 ft.

MANNFORD—Creek, August; Woods-Gilchrist Oil Co. 1 Woody, SW SE SE 2-18n-8e, Red Fork, 2,452-67 ft., 184 bbl. oil, TD 2,467 ft. 3 wells at year end.

MANNFORD, EAST—Creek, March; Weaver & Henry 1 Purcell, NW SE NE 22-19n-9e, Oswego, 1,662-74 ft., 35 bbl. oil, TD 2,697 ft.

MAUD—Pottawatomie, February; Vise et al 1 Owens, SE SW NE 24-8n-4e, Viola, 4,252-69 ft., 2 bbl. oil, TD 4,515 ft. 2 wells at year end.

MAUD—Pottawatomie, August; Gulf Oil Corp. 9 Miller, NE SE SE 18-8n-5e, first Wilcox, 4,285 ft., 130 bbl. oil, TD 4,300 ft.

MORSE—Okfuskee, June; Lottis 1 Kenneda unit, NE NE SE 14-12n-9e, Gilcrease sand, 3,048-57 ft., 35 bbl. oil, TD 3,705 ft., OWWO.

NEWCASTLE, SOUTHEAST—Cleveland, May; Producers Development Co. 1 Neher & Meadows, C SW SW 20-9n-3w, Viola, 9,357-9,430 ft., 110 bbl. oil, TD 9,600 ft.

NORFOLK—Payne, November; Kemp 1 Houston, NE NE NE 14-18n-5e, Red Fork and Mississippi lime, 3,190-3,486 ft., 38 bbl. oil, TD 3,486 ft.

OCONEE, EAST—Coal, November; Roberson 1 Pope, W½ SW NE 34-1n-9e, McLish, 7,178-80 ft., 27,980,000 cu. ft. gas, TD 7,180 ft.

PALACINE—Stephens, August; Big Chief Drilling Co. 1 Harley, SW SW NW 8-2s-6w, Harley sand, 3,162-81 ft., 61 bbl. oil, TD 3,862 ft.

RINGWOOD—Major, October; Mazda 1 Black, NE NW NW 12-21n-10w, Oswego, 6,315-25 ft. and 6,435-50 ft., 50 bbl. oil, TD 7,206 ft.

ROVER, NORTH—Pottawatomie, July; Deep Rock 1 DeJarnette, NE NE NE 17-6n-3e, Viola, 4,250-70 ft., 108 bbl. oil, TD 4,669 ft.

STEEDMAN, NORTH—Pontotoc, March; Martin 1 Hale, NE SW NW 3-4n-7e, sand, 1,114-38 ft., 2 bbl. oil, TD 1,138 ft.

UNION POINT—Pottawatomie, August; Smith and Texas Co. 1 Badger, NE NE SW 21-10n-2e, dolomite, 5,892-99 ft., 15 bbl. oil, TD 5,960 ft.

UNION VALLEY—Logan, December; Jordan 1 Gates, C E½ SW SE 29-16n-1w, Layton, 4,075-95 ft., 11,220,000 cu. ft. gas, TD 5,798 ft., also extension to field.

KANSAS

NEW POOLS

ALBION, NORTH—Reno, March; Cities Service Oil Co. 1 Graber, NW NW NE 14-26s-6w, Viola, 3,997-4,002 ft., 15 bbl. oil, TD 4,166 ft.

AMBOY—Roosk, May; Heathman Drilling Co. 1 Williams, NW NW NW 16-10s-20w, Arbuckle, 3,214-3,821 ft., 352 bbl. oil, TD 3,821 ft. 3 wells at year end.

ANDOVER, SOUTH—Butler, April; W. L. Hartman 1 Pray, SE NW SW 31-27s-3e, Stalnaker, 2,001-34 ft., 2,500,000 cu. ft. gas, TD 3,112 ft.

ANTON—Barton, September; Alpine 1 Hartman, SE SE NE 28-19s-11w, Arbuckle 3,342-50 ft., 31 bbl. oil, TD 3,350 ft.

BASS—Graham, July; Hansen et al., 1 Bass, NW NW SW 12-10s-21w, Arbuckle 3,826-33 ft., 127 bbl. oil, TD 3,833 ft. 5 wells at year end.

BASS, NORTHWEST—Graham, July; Jones-Shelburne & Farmer 1 Miller, NW NW NW 11-10s-21w, Arbuckle, 3,841-49 ft., 3,000 bbl. oil, TD 3,849 ft. 4 wells at year end.

BATCHMAN—Barton, July; Anschutz 1 Batchman, SE SE SE 19-20s-12w, Arbuckle 3,459-80 ft., 180 bbl., TD 3,480 ft.

BERLAND, NORTH—Rooks, May; Francis Oil & Gas Co. 1 Pywell, SW SW SW 31-9s-19w, Arbuckle 3,773-78 ft., 133 bbl. oil, TD 3,778 ft. 2 wells at year end.

BERLAND, SOUTHWEST—Rooks, February; Nadel & Gussman 1 E. Sutor, NE NE SE 26-10s-20w, Arbuckle, 3,729-33 ft., 505 bbl. oil, TD 3,733 ft. 8 wells at year end.

BLOOD CREEK—Barton, June; Herndon Drilling Co. 1 Eveleigh, SE SE NW 9-18s-13w, Lansing, 3,078-82 ft., 10 bbl. oil, TD 3,316 ft.

BLOOMINGDALE—Barton, May; Henderson Oil Co. 1 Jordan, SW SW SE 8-18s-11w, Arbuckle, 3,368-80 ft., 47 bbl. oil, TD 3,380 ft.

BOYLE—Barton, April; Yellow Cab Co. 1 Boyle, SE SW SE 17-17s-14w, Arbuckle, 3,402-06 ft., 321 bbl. oil, TD 2,406 ft. 3 wells at year end.

BROADWAY—Kingman, October; Wakefield 1 Broadway, SE SE NW 21-28s-5w, Mississippian, 3,833-36 ft., 20 bbl. oil, TD 4,361 ft. 2 wells at year end.

BUCKBEE—Barton, January; R. L. Williams 1 Buckbee, SW NE NE 14-20s-12w, Arbuckle 3,352-60 ft., 50 bbl. oil, TD 3,360 ft.

BUSHONG—Lyon, May; Stanolind Oil & Gas Co. and Winkler-Koch 1 Cornwell, NE NE NE 26-16s-10e, Hunton, 2,952-61 ft., 108 bbl. oil, TD 2,967 ft.

CAPITOL VIEW—Barton, June; Lewis Drilling Co. 1 Dietz, SW SW NW 9-17s-14w, Lansing, 3,220-3,430 ft., 129 bbl. oil, TD 3,496 ft.

CEDAR CREEK—Marion, June; Gear et al. 1 Robinson, SW SW NE 31-20s-5e, Viola, 2,561-66 ft., 18 bbl. oil, TD 2,566 ft.

CHEYENNE VIEW, NORTH—Barton, December; Aladdin-Crowe 1 Habiger, SW SW NW 1-19s-12w, Lansing-Kansas City, 3,116-26 ft., 3,170-78 ft., 3,186-92 ft., 118 bbl. oil, TD 3,430 ft.

CHEYENNE VIEW, WEST—Barton, February; J. C. Dozier et al. 1 Miller, SE SE NW 11-19s-12w, Lansing-Kansas City, 3,295-99 ft., 129 bbl. oil, TD 3,403 ft.

CHRISTINA—Ellis, February; Petroleum, Inc. 1 Froelich, SE SE SW 22-12s-16w, Lansing, 3,278-84 ft., 195 bbl. oil, TD 3,495 ft. 3 wells at year end.

COOK—Russell, July; Blair 2 Cook, NW NW SE 26-13s-15w, Lansing, 3,051-66 ft., 46 bbl. oil, TD 3,074 ft. 4 wells at year end.

DECHANT—Ellis, March; Lindas Oil Co. and Aledo 1 Dechant, SW SW SW 6-15s-18w, Arbuckle, 3,670-83 ft., 78 bbl. oil, TD 3,683 ft.

DELL—Stafford, July; Petroleum, Inc., 1 Brown "B," NE NE NW 7-21s-13w, Lansing, 3,329 ft., 118 bbl. oil, TD 3,654 ft. 3 wells at year end.

DE YOUNG—Graham, August; Cook & Galloway and Hansen 1 De Young, SW SW SW 35-9s-21w, Arbuckle, 3,826 ft., 3,000 bbl. oil, TD 3,829 ft. 5 wells at year end.

DE YOUNG, SOUTHEAST—Graham, October; Jones-Shelburne & Farmer 1-A Sutor, SW SW NE 2-10s-21w, Arbuckle, 3,837-48 ft., 3,000 bbl. oil, TD 3,848 ft.

EDEN VALLEY—Stafford, June; Petroleum, Inc. 1 Keller "B," SE NE SW 29-21s-13w, Arbuckle, 3,748-50 ft., 42 bbl. oil, TD 3,782 ft.

FALL CREEK—Sumner, September; Texas Co. 1 Hobbisiefkin, SW NE SW 3-35s-3w, Simpson, 3,746-79 ft., est. 200 bbl. oil, TD 4,779 ft. 4 wells at year end.

FARGO—Graham, June; Peel-Hardman et al. 1 DeSair, SE SE SE 26-9s-22w, Lansing, 3,622-29 ft., 431 bbl. oil, TD 3,977 ft. 3 wells at year end.

FERGUSON, NORTHWEST—Cowley, January; A. H. Reneau 1 Ferguson "A," SE NE SW 16-30s-8e, Kansas City, 2,200-11 ft., 45 bbl. oil, TD 2,310 ft.

FREY—Stafford, August; Vickers 1 Frey, SW SW NE 7-21s-14w, Arbuckle, 3,717-22 ft., 2,392 bbl. oil, TD 3,722 ft. 5 wells at year end.

FT. HAYS STATE COLLEGE—Ellis, January; Skelly Oil Co. 1 Kansas "A," SW SW NW 1-14s-19w, Arbuckle, 3,806-16 ft., 120 bbl. oil, TD 3,826 ft.

GERLANE—Barber, December; Continental 1 Cavin, SW SW NW 29-33s-11w, Mississippian, 4,583-95 ft., 36 bbl. oil, TD 4,616 ft.

GLEN SHARRALD—Rice, May; Vickers Petroleum Co. 1 Heiken, SE SE SW 20-18s-10w, Lansing, 2,938-3,227 ft., 176 bbl. oil, TD 3,270 ft. 3 wells at year end.

GRABS, SOUTHEAST—Harper, July; Deep Rock Oil Corp. 1 Stoddard, SW SW SW 17-31s-18w, Mississippian, 4,386-4,440 ft., 1,532,500 cu. ft. gas, TD 4,975 ft.

GROVER—Rooks, September; Anschutz 1 Grover, CEL NE NE 22-7s-19w, Lansing-Kansas City, 3,272-80 ft. and 3,296-3,303 ft., 143 bbl. oil, TD 3,427 ft. 2 wells at year end.

HAMMEKE—Barton, May; E. H. Adair and Aledo and Aladdin 1 Hammeke, NW NW NW 17-19s-11w, Lansing, 3,065-3,337 ft., 1,563 bbl. oil, TD 3,410 ft. 5 wells at year end.

HAMMEKE, SOUTHEAST—Barton, September; Honaker 1 Birzer, NW NW SE 17-19s-11w, Lansing-Kansas City, 3,089-96 ft., 1,367 bbl. oil, TD 3,380 ft.

HARTENBOWER—Butler, August; McClure et al. 1 Hartenbower, C N/2 NE NW 16-29s-6e, Prue sand, 2,404-80 ft., 140 bbl. oil, TD 3,298 ft.

HARTER—Stafford, March; L. B. Stableford 1 Harter, NE NE SW 30-24s-13w, Simpson sand, 4,167-71 ft., 84 bbl., TD 4,250 ft. 4 wells at year end.

HAZEL, SOUTH—Stafford, February; Petroleum, Inc., 1 Hufford, SE SW NW 28-21s-13w, Arbuckle, 3,706-13 ft., 69 bbl. oil, TD 3,713 ft. 6 wells at year end.

HAZEL, WEST—Stafford, April; Petroleum, Inc. 1 Koopman, NE NW NE 20-21s-13w, Arbuckle, 3,674-79 ft., 311 bbl. oil, TD 3,679 ft. 6 wells at year end.

HONEY CREEK — Greenwood, August; Darling et al. 1 Johnson, CNL SE SE 32-26s-11e, Mississippian, 1,871-76 ft., 50 bbl. oil, TD 1,876 ft.

IRONCLAD — Graham, August; C & C Drilling Co. and Hansen 1 Sutor, SE SE SW 23-9s-22w, Lansing-Kansas City, 3,754-60 ft., 176 bbl. oil, TD 3,760 ft. 4 wells at year end.

IXL—Rice, March; Lewis Drilling Co. et al. 1 Schmidt, NE NE SW 4-19s-10w, Arbuckle, 3,312-35 ft., 135 bbl. oil, TD 3,335 ft.

JESTER CREEK — Harvey, January; Springer & Harper 1 Leffleman, SW NE SE 3-24s-1e, Kansas City, 2,687-92 ft., TD 2,692 ft.

JETMORE—Hodgeman, May; Shell Oil Co. 1 Springer, SE SW SW 24-22s-13e, Mississippian, 4,579-5,184 ft., 1,385 bbl. oil, TD 5,184 ft. 3 wells at year end.

JOHNSON, SOUTH — McPherson, April; Texas Pacific Coal & Oil Co. 1 Krehbiel, SE SW SE 11-20s-3w, Mississippian, 3,015-56 ft., 20 bbl., oil, TD 3,056 ft.

KACHELMAN—Stafford, August; Huber-Pabco 1 Kachelman, SE SE SW 7-25s-13w, Viola, 4,075-86 ft., 106 bbl. oil, TD 4,086 ft.

KERN—Rooks, June; Reserve Drilling Co. 1 Kern, NW NW SW 38-9s-20w, Arbuckle, 3,856-59 ft., 3,000 bbl. oil, TD 3,859 ft. 2 wells at year end.

KOWALSKY, SOUTHWEST—Stafford, May; Phillips & Hansen 1 Fischer, SE SW NW 6-21s-11w, Arbuckle, 3,425-61 ft., 202 bbl. oil, TD 3,461 ft. 4 wells at year end.

LAURA—Rooks, September; Heathman 1 Raymond "A," NW NW NW 30-10s-20w, Arbuckle 3,706-08 ft., 124 bbl. oil, TD 3,708 ft.

LEO—Stafford, October; Petroleum, Inc., 1 Hall, SE SE SW 7-21s-13w, Arbuckle, 3,636-40 ft., 29 bbl. oil, TD 3,640 ft. 2 wells at year end.

LEOVILLE—Barton, October; Lindas 1 Schmidt, NW NW NW 7-17s-14w, Arbuckle, 3,464-69 ft., 58 bbl. oil, TD 3,469 ft. 3 wells at year end.

LEOVILLE, SOUTHEAST—Barton, December; Derby 2 Curtis, NW NW SE 7-17s-14w, Arbuckle, 3,408-14 ft., 443 bbl. oil, TD 3,414 ft.

LOOKOUT HOLLOW—Ellis, November; Brack 1 Ruder, NW NW NE 31-14s-18w, Arbuckle, 3,629-36 ft., 21 bbl. oil, TD 3,636 ft.

McGINTY—Stafford, December; Champlin 1 McGinty, SW SE NE 13-21s-14w, pay 3,503-13 ft., 101 bbl. oil, TD 3,680 ft.

McKINNEY—Meade, August; Skelly Oil Co. 1 McKinney, NW NW NE 2-34s-26w, Mississippian, 5,811-17 ft., 5,822-27 ft., and 5,762-92 ft., 14,870,744 cu. ft. gas, TD 7,686 ft.

MARCOTTE, NORTHWEST—Rooks, August; Barnett 1 Hinkhouse, SE SE SE 9-10s-20w, Arbuckle, 3,722-25 ft., 166 bbl. oil, TD 3,730 ft.

MARY IDA—Rice, March; Sohio Oil and Derby 1 Reif, NW NE SW 31-18s-10w, Arbuckle, 3,273-78 ft., 26 bbl. oil, TD 3,278 ft. 3 wells at year end.

MAX, SOUTH—Stafford, December; Petroleum, Inc., 1 Freuhauf, NE SW SW 15-22s-12w, Lansing, 3,320-46 ft., 284 bbl. oil, TD 3,700 ft.

MILL CREEK—Wabaunsee, October; Skelly Oil Co. 2 Thoewe, SW SE NE 2-13s-10e, Viola, 2,923-27 ft., 3,000 bbl. oil, TD 2,927 ft. 2 wells at year end.

MOREL, EAST—Graham, January; Derby Oil Co. et al. 1 Balthazor, NW NW SE 13-9s-21w, Arbuckle, 3,730-33 ft., 3,016 bbl. oil, TD 3,733 ft. 6 wells at year end.

MOREL, WEST—Graham, February; Peel-Hardman Producers et al. 1 M. P. Sutor, SE SE SE 18-9s-21w, Arbuckle, 3,829-40 ft., 3,000 bbl. oil, TD 3,840 ft. 18 wells at year end.

MORRIS — Greenwood, September; Edwards 1 Kimball, SW NW NW 28-24s-11e, Mississippian, 1,673-76 ft., 12 bbl. oil, TD 1,676 ft.

MUDDY CREEK—Butler, June; Marhenke Drilling Co. 1 Doyle, NE NE SW 13-29s-4e, Bartlesville, 2,811-29 ft., 40 bbl. oil, TD 2,830 ft. 3 wells at year end.

OLSSON, NORTHEAST—Saline, February; Currier & Ives 1 Bjorklund, SW SW NW 2-16s-3w, Viola, 3,380-85 ft., 45 bbl. oil, TD 3,385 ft. 7 wells at year end.

PORTLAND—Sumner, October; Herndon Drilling Co. 2 Hunt, SW SE NW 16-34s-1e, Simpson sand, 4,000-04 ft., 160 bbl. oil, TD 4,004 ft. 2 wells at year end.

PRAIRIE VIEW—Barton, September; Alpine 1 Kowalsky, SE SE NW 20-19s-11w, Lansing-Kansas City, 3,080-3,116 ft., 361 bbl. oil, TD 3,376 ft. 3 wells at year end.

PROSPER, EAST—Rice, August; Lewis et al. 1 Gouldner, NW NW SE 5-18s-9w, Arbuckle, 3,222-38 ft., 168 bbl. oil, TD 3,238 ft. 3 wells at year end.

PUNDSACK, NORTH—Stafford, February; Petroleum, Inc., 1 Brown, SW SE SW 18-21s-13w, Arbuckle, 3,675-82 ft., 52 bbl. oil, TD 3,682 ft.

PUNDSACK, NORTHWEST—Stafford, November; Stanolind Oil & Gas Co. 1 Foster, NE NE SE 24-21s-14w, Lansing, 3,512-22 ft., 3,544-50 ft., and 3,555-59 ft., TD 3,733 ft.

RATTLESNAKE, SOUTHWEST—Stafford, February; Shell Oil Co. 1 Miller, NE SW SE 14-24s-14w, Lansing, 3,760-74 ft., 3,000 bbl. oil, TD 4,309 ft.

RED WING—Barton, November; Adair 1 Eveleigh, SE SE SE 31-17s-12w, Arbuckle, 3,336-43 ft., 108 bbl. oil, TD 3,343 ft.

REIF, SOUTH—Barton, December; Carlock 1 Klug, SE SE SW 31-16s-12w, Lansing-Kansas City, 3,172-77 ft., 34 bbl. oil, TD 3,438 ft.

ROESLER, EAST — Barton, November; Branine & Holl 1 Roesler, NW NW NW 13-18s-11w, Arbuckle, 3,295-98 ft., 220 bbl. oil, TD 3,298 ft.

ROTHGARN, SOUTHEAST—Stafford, April; Mallard and Westgate-Greenland 1 Doran, S½ NE NE 14-21s-13w, Arbuckle, 3,546-3,533 ft., 186 bbl. oil, TD 3,553 ft.

RUSSELL, NORTHEAST — Russell, August; Lewis 1 Streck, SW SE NW 26-13s-14w, Arbuckle, 3,272-75 ft., 240 bbl. oil, TD 3,275 ft. 3 wells at year end.

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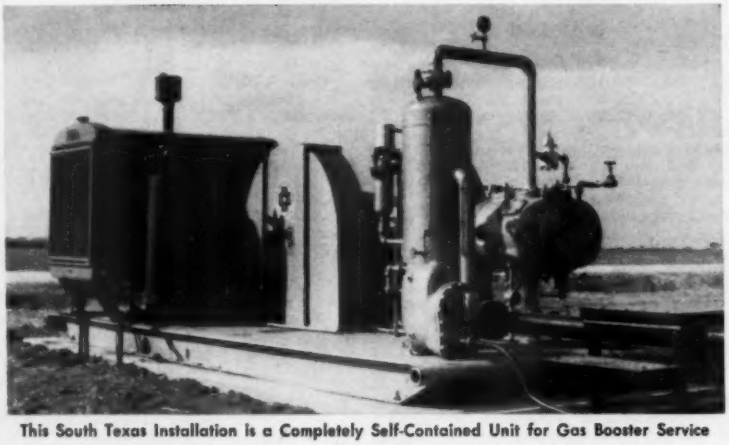

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RUTHERFORD—Pawnee, September; Brack 1 Hankin, NE NE SW 4-20s-16w, Arbuckle 3,708-19 ft., 2,700,000 cu. ft. gas, TD 3,719 ft. 2 wells at year end.

SABETHA—Nemaha, December; Carter Oil Co. 1 Strahm, NW SW NW 13-2s-14e, Hunton, 2,826-34 ft., 2,842-55 ft., 2,855-56 ft., 388 bbl. oil, TD 3,929 ft.

SMITH-DENNING—Graham, May; Westgate-Greenland 1 Smith, NE NE NW 5-10s-21w, Arbuckle, 3,820-22 ft., 1,981 bbl. oil, TD 3,822 ft. 5 wells at year end.

SMOLAN—Saline, December; Studnicka et al. 1 Richter, SE SE SW 19-15s-3w, cherty Viola, 3,386-91 ft., 132 bbl. oil, TD 3,391 ft. 2 wells at year end.

STAMPER—Rooks, March; Shell Oil Co. 1 Stamper, SE NW SE 28-8s-17w, Lansing, 3,394-3,408 ft., 8 bbl. oil, TD 3,539 ft.

SUGARLOAF, EAST—Ellis, October; Derby Drilling Co. 1 Jacobs, NW NW SW 21-13s-17w, Lansing-Kansas City, 3,391-99 ft., 126 bbl. oil, TD 3,713 ft.

SUNFLOWER—Barton, January; Franco-Central and Pickrell Drilling Co. 1 Klug, NE NE SW 8-17s-12w, Arbuckle, 3,376-79 ft., 132 bbl. oil, TD 3,379 ft.

SWEET WILLIAM—Ellis, October; The Texas Co. 1 Fries, SE SE NW 10-12s-20w, Arbuckle, 3,908-19 ft., 25 bbl. oil, TD 3,919 ft.

SWENSON—Saline, July; Carey et al. 1 Swenson, NE NW SW 34-15s-3w, Viola, 3,340 ft., 30 bbl. oil, TD 3,368 ft.

SYMS, NORTH—Stafford, December; Derby 1 Johnson, NE NE NW 17-21s-12w, Lansing, 3,305-13 ft., 3,356-64 ft., and 3,393-3,406 ft., 10 bbl. oil, TD 3,545 ft.

TEALL, NORTH—Graham, July; Heathman 1 Abiram, NE NE SW 4-10s-21w, Arbuckle, 3,870-73 ft., 330 bbl. oil, TD 3,873 ft. 5 wells at year end.

TEALL, NORTHEAST—Graham, June; Hartman 1 Webster, NE NE NE 9-10s-21w, Arbuckle, 3,836-39 ft., 299 bbl., oil, TD 3,839 ft. 4 wells at year end, also later established new pay in Lansing-Kansas City.

THREE MILE CREEK—Morris, June; Koester et al. 1 Burns, SW NW SW 25-16s-5e, Mississippi chert, 2,208-52 ft., 40 bbl. oil, TD 2,252 ft. 3 wells at year end.

UNDERWOOD—Barton, August; Darby-Bothwell 1 Underwood "A," NE SE NE 15-17s-13w, Arbuckle, 3,342-48 ft., 41 bbl. oil, TD 3,348 ft.

UNION—Rice, June; Brunson Drilling Co. 1 Yoest, C E/2 SE SW 28-20s-8w, Pennsylvanian conglomerate, 3,275-3,315 ft., 8,730,000 cu. ft. gas, TD 3,496 ft.

VAN WINKLE—Stafford, September; Glick 1 Van Winkle, NW SW SW 23-21s-14w, Lansing-Kansas City, 3,570-74 ft. and 3,592-96 ft., 104 bbl. oil, TD 3,784 ft.

VAN WINKLE, SOUTH—Stafford, December; Murfin et al. 1 Pelter, NW NW SE 26-21s-14w, Lansing-Kansas City, 3,569-73 ft. and 3,591-95 ft., 230 bbl. oil, TD 3,797 ft.

WALZ—Trego, December; Peel-Hardman 1 Walz, SE SE SW 12-11s-21w, Arbuckle, 3,666-80 ft., 397 bbl. oil, TD 3,680 ft.

WHEATLAND—Ellis, January; Alpine 1 Leiker, SE SE SW 18-15s-17w, Arbuckle, 3,571-85 ft., 152 bbl. oil, TD 3,585 ft.

WILDHORSE CREEK—Graham, June; Aurora Gasoline Co. 1 Walker, NE NE NE 16-9s-22w, Arbuckle, 3,960-62 ft., 422 bbl. oil, TD 3,962 ft. 2 wells at year end.

ZINK—Barton, October; Branine & Holl 1 Zink, SE SE NE 13-18s-11w, Arbuckle, 3,286 ft.

UNNAMED—Barton, May; Alpine 1 Rusco, SW SW SE 8-19s-12w, Arbuckle, 3,418-42 ft., 25 bbl. oil, TD 3,442 ft.

UNNAMED—Ford, December; Clay 1 Bierney, C SW NE 2-28s-21w, Mississippian, 4,954-86 ft., 12,000,000 cu. ft. gas, TD 5,045 ft.

UNNAMED—Lyon, December; Sauder et al. 1 Davey, SE NW SW 31-21s-12e, Bartlesville sand, 1,776-93 ft., 9 bbl. oil, TD 1,839 ft.

UNNAMED—Phillips, October; Maxwell et al. 1 Boere, NW SW NE 33-1s-18w, pay at 3,502-13 ft., 210 bbl. oil, TD 3,575 ft.

UNNAMED—Phillips, October; Honaker 1 Brockett, SW SW SW 30-1s-18w, Lansing, 3,518-22 ft. and 3,530-37 ft., 317 bbl. oil, TD 3,540 ft.

UNNAMED—Russell, April, Franco-Central Oil Co. 1 Kortman, SW SW NE 22-12s-14w, Lansing, 2,961-3,260 ft., 462 bbl. oil, TD 3,280 ft.

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UNNAMED—Sedgwick, November; McBride 1 Pipkin, NW SW SW 6-28s-4w, pay 3,785-93 ft., 50 bbl. oil, TD 3,793 ft.

UNNAMED—Stafford, September; Adair 1 Brenn, SW SW SE 1-21s-12w, Arbuckle, 3,451-58 ft., 25 bbl. oil, TD 3,498 ft.

NEW PAYS

BEISEL—Russell, January; C & S Well Service 1 Beisel, SW SW NW 15-14s-12w, Lansing, 15 bbl. oil, TD 3,134 ft., OWWO.

CHEYENNE VIEW—Barton, April; J. C. Dozier 1 Schartz, NE NE 10-19s-12w, conglomerate, 3,395-3,405 ft., 54 bbl. oil, TD 3,405 ft. 4 wells at year end.

DAVIDSON—Russell, December; Mid-Plains 2 Chedwiggen "B," CSL SE SW 28-15s-11w, Lansing-Kansas City, 3,020-24 ft.

NETTIE—Rooks, July; Berwick Isern 1 Carmichael, SE SE SE 33-9s-17w, Arbuckle, 3,516-27 ft., 447 bbl. oil, TD 3,527 ft.

ORTH—Rice, December; Lebsack et al. 1 Munyon, NE NE SW 34-18s-10w, Arbuckle, 3,275-81 ft., 204 bbl. oil, TD 3,281 ft.

SILVER BELL—Stafford, December; Ferrell 2 Hahn, SE NW SW 10-22s-13w, pay at 3,498-3,510 ft., 13 bbl. oil, TD 3,790 ft.

TEALL, NORTHEAST—Graham, June; Hartman 1 Webster, NE NE NE 9-10s-21w, Lansing-Kansas City, 3,680-3,706 ft., 229 bbl. oil, TD 3,847 ft., pool opener drilled deeper.

SOUTH CENTRAL NEBRASKA

NEW POOL

FISCHER—Harlan, July; Alpine, B & R 1 Fischer, SW SW SE 33-1n-18w, Lansing, 3,366-74 ft., 100 bbl. oil, TD 3,450 ft.

WESTERN NEBRASKA

NEW POOLS

BIG SPRING—Deuel, October; Ideal Drilling Co. 2 Bosley, SW SE SE 19-13n-42w, sand at 3,288-95 ft., 4,000,000 cu. ft. gas, TD 3,357 ft. 2 wells at year end.

DORMAN—Cheyenne, July; Ginther, Warren & Ginther et al 1 Dorman, SE SW NE 23-14n-50w, G sand, 4,688 ft., 352 bbl. oil, TD 4,696 ft.

HUNTSMAN—Cheyenne, February; Ohio Oil Co. 1 Cruise, NW SW SE 7-14n-49w, Dakota, 4,743-58 ft., 54,000,000 cu. ft. gas, TD 4,980 ft.

HUNTSMAN—Cheyenne, May; Ohio Oil Co. 1 Gurschke, SW NE SE 3-14n-50w, Dakota, 4,742-58 ft. and 4,768-4,817 ft., 125 bbl. oil, TD 5,195 ft. 12 wells at year end.

SIDNEY, SOUTHWEST—Cheyenne, October; Macauley-Dorough et al 1 Anderson, SE SE SE 12-13n-51w, D sand, 4,660-72 ft., 4,500,000 cu. ft. gas, TD 5,288 ft., PB 4,672 ft.

SIOUX, EAST—Cheyenne, September; Deep Rock Oil Co.-Frontier Refining Co. 1 Siemers, SW SW NW 6-14n-49w, J sand, 4,823-25 ft., 181 bbl. oil, TD 4,840 ft.

SUNOL—Cheyenne, June; Ohio Oil Co. 1 McLernon, NE NE NE 9-14n-49w, D sand, 4,490-4,504 ft., 126 bbl. oil, TD 5,016 ft. 3 wells at year end.

COLORADO

NEW POOLS

ARMSTRONG—Logan, July; British-American Producing Co. and Plains Exploration Co. 1 H. Segelke, NE NW NE 26-11n-53w, J sand at 5,356 ft., 58 bbl. oil, TD 5,800 ft., PB 5,448 ft.

BUCKINGHAM—Weld, November; Shell Oil Co. 1 H. A. Hanson, NE NE NE 33-8n-59w, Muddy, 6,710-22 ft., 38 bbl. oil. TD 7,254 ft.

LEE—Morgan. August; Adams Drilling Co. and J. M. Huber Corp. 2 Lee, SW SE NE 2-2n-57w, Muddy, 5,440-52 ft., 50 bbl. oil, TD 5,478 ft. 2 wells at year end.

LOVELAND—Larimer, September; W. E. Atkinson and C. S. Lavington 1 Caldwell, C SE SE 30-5n-68w, Hygiene, 1,432-43 ft., 1,530,000 cu. ft. gas, TD 1,492 ft. 2 wells at year end.

MERINO—Logan, August; Trigood Oil Co. and Ohio Oil Co. 1 Couch, SE SE SE 19-6n-54w, second Dakota, 5,095-5,112 ft., 280 bbl. fluid (12 per cent water), TD 5,391 ft., PB 5,160 ft. 6 wells completed at end of year.

MOUNT HOPE—Logan, November; Shell Oil Co. 1 Green, SW NW NW 30-9n-53w,

Muddy, 4,866-85 ft., 500 bbl. oil, TD 5,410 ft., PB 4,926 ft.

WYOMING

NEW POOLS

BYRON, SOUTH—Big Horn, September; M. D. Smith 1 Brown, NW NE SE 31-56n-96w, 250 bbl. oil, Frontier at 2,714 ft., TD 5,757 ft. 3 wells at year end.

CLARETON—Weston, August; Schlaikjer Brothers et al 1 State, NE NW SW 16-43n-65w, 40 bbl. oil, sand at 6,148-61 ft., TD 6,168 ft. 6 wells at year end.

COLE CREEK, SOUTH—Converse, November; Ralph Lowe 1 State, SW NW SW 16-34n-76w, 238 bbl. oil, Dakota at 8,520 ft., TD 8,564 ft.

DEER CREEK—Converse, September; S. W. McLaughlin 1 State, NW NE SE 7-32n-76w, 200 bbl. oil, Dakota, 5,099-5,109 ft., TD 5,813 ft.

GLENROCK—Converse, January; Steelco Drilling Co. 1 McDonald, SW NE SE 32-34n-75w, 21 bbl. oil, Muddy, 7,202-26 ft., TD 7,258 ft.

GLENROCK, SOUTH—Converse, July; Far West Oil Co.-Hancock Oil Co. 1 State, SW SW SE 7-33n-75w, 185 bbl. oil, Dakota, 5,856-70 ft., TD 5,880 ft. 6 wells at year end.

HAPPY SPRINGS—Fremont, June; Sinclair Oil & Gas Co. 1 Unit, SE SW SW 16-28n-93w, 106 bbl. oil, Muddy, 6,550-90 ft., TD 10,034 ft.

HAY CREEK, WEST—Weston, July; Lakota Petroleum Corp. 1 Sterling, SW NE SW 6-45n-66w, 130 bbl. oil, Newcastle, 6,396-6,414 ft., TD 6,421 ft.

LITTLE BUCK CREEK, SOUTH—Niobrara, July; Continental Oil Co. 18 E. L. C. U. "B," SW SW NE, 35-36n-64w, 375 bbl. oil, Dakota, 3,922-48 ft., TD 3,985 ft., PB 3,955 ft.

MEADOW CREEK—Johnson, April; Continental Oil Co. 1 Unit, NE NE NW 11-41n-78w, 300 bbl. oil, Lakota at 7,470 ft., TD 7,555 ft. 8 wells at year end.

MEADOW CREEK, EAST—Johnson, October; American Liberty Oil Co. 1 Irvine, NW NW NW 7-41n-77w, 264 bbl. oil, Lakota, 7,487-92 ft., TD 7,517 ft.

MEADOW CREEK, NORTH—Johnson, January; Delhi Oil Corp. 1 Government, SE NW NE 35-42n-78w, 400 bbl. oil, Sussex, 3,918-79 ft., TD 4,513 ft. 5 wells at year end.

SAGE SPRING CREEK, EAST—Natrona, July; Amerada Petroleum Corp. 6 Unit, C SW NE 35-38n-78w, Dakota at 5,663 ft., 150 bbl. oil, TD 5,717 ft. 8 wells at year end.

SLICK CREEK—Washakie, October; General Petroleum Corp. 84-32-G, SE SE NE 32-47n-92w, 684 bbl. oil, Embar, 10,460-10,554 ft., TD 10,554 ft.

NEW PAYS

GLENROCK—Converse, April; Phillips Petroleum Co. 1 Brubaker, SW SW SW 33-34n-75w, Dakota, 7,048-86 ft., 162 bbl. oil, TD 7,188 ft., PB 7,086 ft. 3 wells at year end.

GLENROCK, SOUTH—Converse, November; Ralph Lowe, R. A. Goodall, and Clark Sargeant 1 W. E. Barber, SW NW NE 17-33n-75w, Muddy, 5,732-40 ft., flowed 78 bbl. per hour through 3/8-in. choke, TD 5,815 ft. 2 wells at year end.

HAPPY SPRINGS—Fremont, September; Sinclair Oil & Gas Co. 2 Unit, SW NW SW 16-28n-93w, Frontier at 5,328 ft., 525 bbl. oil, TD 6,084 ft. 2 wells at year end.

MEADOW CREEK—Johnson, September; Continental Oil Co. 5 Unit, NE NE SE 9-41n-78w, Lakota at 7,543 ft., 384 bbl. oil, TD 7,617 ft. 8 wells at year end.

MEADOW CREEK, NORTH—Johnson, January; Miami Corp. 3-A Federal-Hill, SE NE NE 34-42n-78w, Shannon at 4,436 ft., 30 bbl. oil, TD 4,464 ft. 45 wells at year end.

SUSSEX—Johnson, June; Continental Oil Co. 15 Unit, SE NE SW 15-42n-78w, Shannon, 4,604-42 ft., 60 bbl. oil, TD 7,821 ft., PB 4,660 ft. 10 wells at year end.

MONTANA

NEW POOLS

PONDERA, SOUTHWEST—Teton, May; Phillips Petroleum Co. 1 Freda Johnson, NE NW NE 31-27n-4w, Madison, 2,204-2,225 ft., 54 bbl. oil, TD 2,251 ft., PB 2,225 ft.

SUMATRA, NORTHWEST—Rosebud, November; Farmers Union Central Exchange and Mule Creek Oil Co. 1 Sawyer, C NE SW 26-11n-32e, Heath, 5,254-77 ft., 225 bbl. oil, TD 5,277 ft. 2 wells at year end.

UTAH

NEW POOL

GUSHER—Uintah, July; The California Co. 1 Unit, SE NW NW 35-5s-19e, Green River, 8,699-8,950 ft., 35 bbl. oil, TD 9,757 ft., PB 8,950 ft.

NORTHWEST NEW MEXICO

NEW POOLS

LINDRITH—Rio Arriba, January; Delhi Oil Corp. 1 Ingwerson, C SE SE 20-24n-2w, Dakota, 7,792-98 ft., 140 bbl. oil, TD 7,802 ft., PB 7,769 ft. (Well has been redrilled and is still testing).

CEDAR HILL—San Juan, September; Delhi Oil Corp. 1 Mudge, SE SW SE 21-31n-11w, Point Lookout, 4,760 ft., 415,000 cu. ft. gas, TD 4,951 ft. 10 wells at year end.

MUDGE, SOUTH—San Juan, September; J. D. Hancock 2 Mudge-Federal, NW SE NW 18-27n-11w, Pictured Cliffs 1,754 ft., 1,250,000 cu. ft. gas, TD 1,845 ft.

CALIFORNIA

NEW POOLS

ANTELOPE HILLS, NORTH—Kern, June; Shell Oil Co. 63-X, SW NE 23-27-19, Agua sand (Miocene), 441 bbl. oil, 2,276-2,360 ft., TD 3,252 ft. 4 wells at year end.

CASTAIC CREEK—Los Angeles, August; The Texas Co. 1 Honor Farm, NW SW 6-4n-16w, Upper Miocene sand, 1,414 bbl. oil, 5,280-5,418 ft., TD 6,038 ft.

CASTAIC JUNCTION—Los Angeles, January; Humble Oil & Refining Co. 1 Newhall Land & Farming Co., NE NE 23-4n-17w, Mohnian sand (Miocene), 178 bbl oil, 11,792-11,839 ft., TD 11,952 ft. 2 wells at year end.

HANCOCK—San Luis Obispo, August; Hancock Oil Co. of California 4 Bishop,

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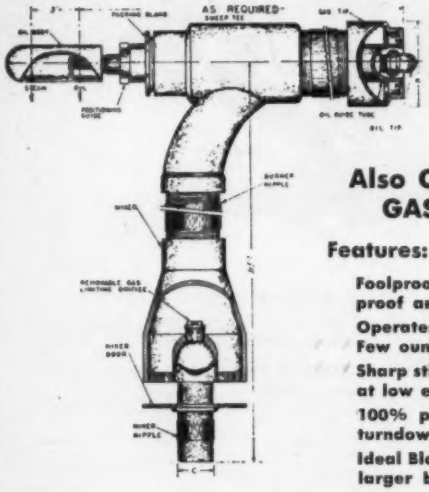

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Features:

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- 100% primary air with 8-1 turndown range.
- Ideal Blowout proof pilot for larger burners.

John Zink Series Y and YC Combination Gas and Oil Burners are particularly designed for boilers and process furnaces where maximum heat release at low excess air and high heat density place a premium on reliable burner performance at low first cost.

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— WRITE FOR LITERATURE —

JOHN ZINK COMPANY

4401 South Peoria **Tulsa, Oklahoma**

SE NW 31-32s-20e, Miocene sand, 250 bbl. oil, 5,786-6,015 ft., TD 6,235 ft.

HANFORD—King, July; Goshen Syndicate 2 Drummond-Union, SE SW 36-18s-22e, Zilch sand (?) (Miocene), 125 bbl. oil, 5,244-52 ft., TD 5,404 ft. 2 wells at year end.

HARVESTER—King, February; Shell Oil Co. 1 Harvester unit, SW SE 11-23s-21e, sand, 4,150,000 cu. ft. gas, 2,802-05 ft., TD 4,300 ft.

MORALES (SUPERIOR)—San Luis Obispo, April; Superior Oil Co. 18 Government, SW SW 2-11n-18w, Lower Miocene (?) sand, 400 bbl. oil, 5,635-6,105 ft., TD 6,126 ft. 3 wells at year end.

TAPO, SOUTH—Ventura, March; John McQuaid 1 Tapo, SE NE 13-3n-18w, lower Modelo sand (uper Miocene), 41 bbl. oil, 302-542 ft., TD 542 ft. 2 wells at year end.

TELEPHONE HILLS—Kern, June; Pacific Western Oil Corp. 82-A Rankin-T.W.A., NE NE 31-30-22, Oceanic sand (Eocene), 3,500 bbl. oil, 5,395-5,495 ft., TD 5,495 ft. 2 wells at year end.

TUNIS CREEK—Kern, February; D. K. Associates 1 Corral (later changed to 13-28 Corral), SW NW 28-11n-18w, Valvulinaria Californica sand (Miocene), 536 bbl. oil, 1,313-51 ft., TD 1,351 ft., (later deepened to 1,790 ft. and recompleted for 90 bbl.), 4 wells at year end.

NEW PAYS

ALISO CANYON—Los Angeles, April; Tide Water Associated Oil Co. 27 Porter, NE SE 28-3n-16w, Aliso sand of Pico formation (Pliocene), 176 bbl. oil, 4,068-4,154 ft., TD 4,156 ft. 4 wells at year end.

BREA - OLINDA—Los Angeles, March; Shell Oil Co. B-6 Puente, SE SE 34-2s-10w, upper Miocene sand, 707 bbl. oil, 5,143-6,863 ft., TD 6,900 ft.

CASTAIC CREEK—Los Augeles, December; The Texas Co. 2 Honor Rancho (NCT-1), NE SE 1-4n-17w, deeper Miocene sand, 260 bbl. oil, 6,408-6,527 ft., TD 6,642 ft., PB 6,530 ft.

CASTAIC JUNCTION—Los Angeles, December; Humble Oil & Refining Co. 3 Newhall Land & Farming Co., 24-4n-17w, upper Mohnian sand (Miocene), 264 bbl. oil, 9,815-65 ft., TD 10,115 ft.

CUYAMA, SOUTH—Santa Barbara, September; Richfield Oil Corp. 84 Hibberd, SE NE 1-9n-27w, Johnson sand of Bitter Creek formation (Middle Miocene), 42 bbl. condensate, 3,861-3,938 ft., TD 4,534 ft., PB 3,940 ft. (Not being produced).

CUYAMA, SOUTH—Santa Barbara, November; Richfield Oil Corp. 22 Hibberd, NW NW 6-9n-26w, Hibberd sand (lower Miocene), 977 bbl. oil, 4,170-4,260 ft., TD 4,265 ft.

DEL VALLE—Los Angeles, March; Trigood Oil Co. 1 Kinler, SE NW 16-4n-17w, Del Valle sand (upper Miocene), new fault block, 250 bbl. oil, 7,128-7,393 ft., TD 7,664 ft., PB 7,400 ft.

EDISON, SOUTH—Kern, November; Franco-Western Oil Co. 84-34, Frick, NE 34-30s-29e, Schist zone (Miocene), 65 bbl. oil, 3,989-4,075 ft., TD 4,075 ft.

MIDWAY-SUNSET—Kern, November; General Petroleum Corp. 101 Ethel-D, SE SE 36-12n-24w, new shallow sand (Pleistocene), 50 bbl. oil, 2,710 ft., TD 4,043 ft., PB 2,870 ft.

McDONALD ANTICLINE—Kern, July; Ferguson & Bosworth 2 Layman, SW SE 18-28s-20e, Buttonbed sand (Miocene), est. 500 bbl. oil, 80 ft. of perforated liner landed at 2,057 ft., TD 5,057 ft. 3 wells at year end.

MORALES—San Luis Obispo, April; Hancock Oil Co. of Calif. 65 Hancock-Oceanic, NW SE 10-11n-28w, Morales sand (Pliocene), 75 bbl. oil, 1,710-1,915 ft., TD 2,492 ft., PB 1,920 ft.

MOUNTAIN VIEW—Kern, December; L. O. Tarrant 1 Zuver, NW SE 18-30s-29e, Jeppi sand (Pliocene?), 70 bbl. oil, 4,144-4,218 ft., TD 4,456 ft., PB 4,226 ft.

RIO VISTA—Sacramento, June; Brazos Oil & Gas Co. 1 River Islands Land Co., SW NW 29-4n-4e, lower Ione sand (Eocene), est. 5,000 M.c.f. gas, 4,160-70 ft., TD 5,158 ft.

SIGNAL HILL—Los Angeles, May; Jack C. Rogers 1 Enterprise, 30-4s-12w, new fault-block pool (Pliocene), 348 bbl. oil, 2,306-2,404 ft., TD 2,860 ft. 40 wells at year end.

SIGNAL HILL—Los Angeles, June; R. W. Jerman and F. R. Bartee 1 Webb, 33-4s-12w, new fault-block pool (Miocene), 1,000 bbl. oil, 510 ft. of perforated liner landed at 6,440 ft., TD 7,551 ft., PB 6,440 ft. 3 wells at year end.

TUNIS CREEK—Tecuya pool, Kern, June; D. K. Associates 2, 73 Corral, SE NE 29-11-28, Tecuya sand (Oligocene ?), 500 bbl. oil, 1,565-1,675 ft., TD 1,740 ft.

UNNAMED—Sargent area, San Benito, August; Jack Herley, Opr., O'Connell, SE SE 4-12s-4e, Pliocene sand, 50 bbl. oil, 1,937-2,106 ft., TD 2,836 ft., PB 2,106 ft.

UNNAMED—Edison Grove area, Kern, December; Richfield Oil Corp. 1 Shields-Arms, NE NE 32-29s-29e, Olcese sand (Miocene), 354 bbl. oil, 80 ft. of perforated liner landed at 3,578 ft., TD 3,672 ft., PB 3,580 ft.

MICHIGAN

NEW POOLS

BISHOP—Newaygo, April; Sun Oil Co. 1 Wood, NW SW SE 19-12n-13w, Traverse 2,223 ft., 161 bbl. oil, TD 2,226 ft. 8 wells at year end.

CANNON CREEK—Missaukee, April; Brazos Oil & Gas Co. 1 Miltner & Shaffer comm., SE NW 1-24n-7w, Traverse 2,670 ft., 14,500,000 cu. ft. gas, TD 4,708 ft., PB 2,761 ft. 22 wells at year end.

CEDAR CREEK—Muskegon, June, Charles D. Hoffman 1 Buchannan, NW NW SE 19-11n-15w, Berea 1,117 ft., 750,000 cu. ft. gas, TD 1,127 ft., 3 wells at year end.

CLEAR LAKE—Van Buren, October; Ford Henry 1 Cooley, NW NW NW 10-1s-13w, Traverse 1,396 ft., 20 bbl. oil, TD 1,399 ft. 8 wells at year end.

DUNNINGVILLE—Allegan, November; P. K. Degenther 1 State-Heath, SE SE SW 22-3n-14w, Traverse 1,424 ft., 120 bbl. oil, TD 1,438 ft. 3 wells at year end.

EXCELSIOR—Kalkaska, September; Neil Wagenaar & Edward Wagner 1 Boy Scout of America-Marshall, SE SW SE 11-27n-6w, Tra-

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for Quality Coal Tar Products

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Situated adjacent to the Lone Star Steel Company's new pipe plant, Reilly Tar & Chemical takes basic raw materials from its Texas neighbor. Lone Star pipe, in turn, is coated and protected with Reilly products, especially processed for this vital job.

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IN TEXAS: LONE STAR and DALLAS

Coal Tar Products for Industry

Reilly COAL TAR PRODUCTS

verse 2,004 ft., 10 bbl. oil., TD 2,042 ft. 2 wells at year end.

FORK, NORTH—Osceola, August; Irvin W. Hartman 1 Manley, SE NE SE 33-17n-7w, Dundee 3,788 ft., 120 bbl. oil, TD 3,792 ft. 4 wells at year end.

RABBIT RIVER—Allegan, October; T. R. Kisner and C. F. Laue 1 Worst estate, NE NE NE 32-4n-13w, 60 bbl. oil., TD 1,659 ft. 5 wells at year end.

ROSE LAKE GAS—Osceola, October; Brazos Oil & Gas Co. 1 Compton comm., C W line SW 31-19n-9w, Stray 1,337 ft., 1,132,000 cu. ft. gas., TD 1,375 ft., PB 1,355 ft.

SKEELS (DUNDEE)—Gladwin, December; Don Rayburn 1 Cassidy, S½ SW SE 30-20n-2w, Dundee 3,830 ft., estimated 7,200 bbl. oil daily, restricted to 130 bbl. oil daily, TD 3,847 ft. 2 wells at year end.

UNION—Isabella, August; Franklin T. Rand and C. W. Collin 1 Albar, NW NW NW 20-14n-4w, Traverse 3,118 ft., 85 bbl. oil, TD 3,195 ft. 4 wells at year end.

WHITE RIVER—Muskegon, April; Kenneth A. Fox 1 Gee, SE SW NE 15-12n-18w, Dundee 2,050 ft., 30 bbl. oil, TD 2,056 ft.

UNNAMED—Allegan, September; Sheldon-Stewart Co. 1 Flynn, SW SE NE 13-2n-13w, Traverse 1,519 ft., 2 bbl. oil, TD 1,523 ft.

UNNAMED—Allegan, May; Dale M. Leonard 1 Haddaway, N½ NE NE 8-1n-16w, Traverse 1,156 ft., 2 bbl. oil, TD 1,189 ft., PB 1,161 ft.

UNNAMED—Allegan, January; Universal Drilling Co. 1 Berry, NE NE NW 21-3n-13w, Traverse 1,823 ft., 10 bbl. oil, TD 1,827 ft.

UNNAMED—Allegan, October; James J. McGerry, Trustee 1 Smith, NW NW NW 9-1n-12w, Traverse 1,454 ft., 20 bbl. oil, TD 1,457 ft.

UNNAMED—Antrim, November; Ohio Oil Co. 1 State-Custer, NW SW NW 16-29n-7w, Traverse 1,069 ft., 3,100,000 cu. ft. gas, TD 2,918 ft., PB 1,205 ft.

UNNAMED—Bay, October; E. V. Hilliard 1 Bay Trust Co. and Castle, NW NW NW 23-16n-3e, Dundee 3,199 ft., 44 bbl. oil, TD 3,354 ft., PB 3,333 ft.

UNNAMED—Ionia, October; Mercer Oil Co., Inc., 1 Schafer, SE SE SW 18-8n-5w, Dundee 2,970 ft., 4 bbl. oil, TD 2,993 ft., PB 2,991 ft.

UNNAMED—Muskegon, February; Mercer Oil Co., Inc., 1 Knitter, SW SW SE 23-11n-15w, Traverse 1,948 ft., 20 bbl. oil, TD 2,449 ft., PB 1,959 ft.

UNNAMED—Oceana, August; P. K. Degenther 1 State-Otto, SE SE SE 32-13n-16w, Berea 1,445 ft., 4 bbl. oil, TD 1,895 ft., PB 1,464 ft.

UNNAMED—Oceana, March; Welsh Oil Co. 1 Freeland, SW NE NE 10-16n-17w, Berea 810 ft., 116,000 cu. ft. gas, TD 2,219 ft., PB 830 ft.

UNNAMED—Van Buren, June; Harris Oil Co. 1 Horton, SW SE NE 27-1s-15w, Traverse 1,126 ft., 10 bbl. oil, TD 1,131 ft., PB 1,129 ft.

NEW PAYS

BILLINGS—Gladwin, October; Socony-Vacuum Oil Co., Inc., B-3 McCrandell, SW NW SW 2-17n-1e, 35 bbl. oil, Detroit River 4,078 ft., TD 4,995 ft., PB 4,200 ft. 2 wells at year end.

BUTMAN—Gladwin, October; H. E. Bell 1 Serlin & Kaminsky, NE NE SW 12-20n-1w, Traverse 2,780 ft., 72 bbl. oil, TD 2,791 ft.

ELMWOOD—Tuscola, April; C. W. Collin 1 Mullen, SE SE SE 17-14n-10e, Traverse 1,880 ft., 3,500,000 cu. ft. gas, TD 1,885 ft.

WESTERN KENTUCKY

NEW POOLS

BALD KNOB—Webster, April; Sun Oil Co. 1 E. Cobb, 22-N-23, 6 bbl. oil, Cypress, 2,188-94 ft., TD 2,673 ft. 2 wells at year end.

BEACH GROVE, EAST—McLean, August; Felmont Oil Corp. 1 J. H. Hayden, 13-N-26, 40 bbl. oil, Waltersburg, 1,669-1,700 ft., TD 2,575 ft. 2 wells at year end.

HICKORY SCHOOL.—Daviess, March; F. M. Ashby 1 L. May, 20-O-31, 1,750,000 cu. ft. gas, Cypress 929-46 ft., TD 946 ft.

HOUSE BRIDGE—Henderson, April; Ralph Halbert et al 1 S. Tapp, 18-O-22, 70 bbl. oil, Cypress 2,242-56 ft., TD 2,259 ft.

MIDWAY—Henderson, April; Joe Reznik 1 C. Trigg, 21-P-21, 80 bbl. oil, McClosky, 2,586-90 ft., TD 2,591 ft.

POOLE, WEST—Henderson, July; Jax Oil Co. 1 E. A. Barnett, 6-N-23, 6 bbl. oil, Jackson, 2,245-58 ft., TD 2,745 ft. 9 wells at year end.

TILDEN, EAST—Webster, August; Delta Drilling Co. 1 Townsend, 20-N-22, 121 bbl. oil, Tar Springs, 1,900-25 ft., TD 1,927 ft. 5 wells at year end.

ZION, NORTH—Henderson, June; R. E. Hupp et al 1 Baskett-Grafton, 4-P-25, 190 bbl. oil, McClosky, 2,225-36 ft., TD 2,236 ft. 37 wells at year end.

NEW PAYS

BALD KNOB—Webster, July; Sun Oil Co. 1 R. T. Bridwell, 22-N-23, 26 bbl. oil, Palestine 1,616-33 ft., TD 2,273 ft.

POOLE, WEST—Henderson, July; F. W. Meyers 1 E. Allen, 6-N-23, 80 bbl. oil, Tar Springs 1,866-82 ft., TD 1,882 ft. 2 wells at year end.

ZION, NORTH—Henderson, September; George S. Engle 2 Brown, 3-P-25, 35 bbl. oil, Bethel 2,016-32 ft., TD 2,032 ft. 6 wells at year end.

ILLINOIS

NEW POOLS

AB LAKE, WEST—Gallatin, November; Coy & Vandenbark 1 L. Drone, 31-8s-10e, Aux Vases, 2,727-32 ft., TD 2,754 ft.

BARTELSO, EAST—Clinton, September; Deep Rock Oil Corp. 1 C. Johnpeter, 23-1n-3w, 99 bbl. oil, Devonian, 2,554-60 ft., TD 2,564 ft.

CALHOUN, EAST—Richland, January; R. P. Johnson 1 C. W. Moore, 12-2n-10e, 382 bbl. oil, McClosky, 3,270-80 ft., TD 3,280 ft. 5 wells at year end.

CALHOUN, CENTRAL—Richland. October; Sanders & Frye Drilling Co. 1 C.

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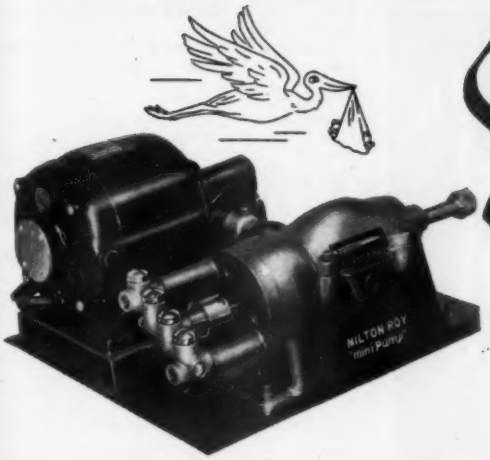

Announcing the Arrival of **"miniPump"**

The Newest Milton Roy "Baby"

Mother: —the necessity for precisely metering and pumping liquids in minute quantities.

Father: —the one and only Milton Roy double ball-check design.

Weight: —42 lbs.

Capacity: —3—800 ml/hr

Pressure:—up to 1000 psi.

"miniPump" handles clear liquids in minute quantities at pressures up to 1000 psi. It is a true Controlled Volume Pump, incorporating the exclusive Milton Roy double ball-check liquid end in minified form with a fractional hp motor driver. As with all Milton Roy Pumps "mini" is a positive displacement, precise metering unit.

The liquid end is heat treated type #20 stainless steel, with stainless steel, glass or synthetic sapphire ball-checks, to handle most corrosives. Chamber displacement, or scavenging, is complete over the full range of stroke length adjustment. Capacity is readily varied while operating, from zero to maximum, by a screw and graduated scale adjustment.

"miniPumps" are available in Simplex, Duplex and Multiplex models with motor drive, also as single units powered by 1½" reciprocating air pistons.

If yours is a problem of pumping clear liquids in precisely metered volumes and very small quantities by all means investigate—see what Milton Roy's new "miniPump" can do for you.

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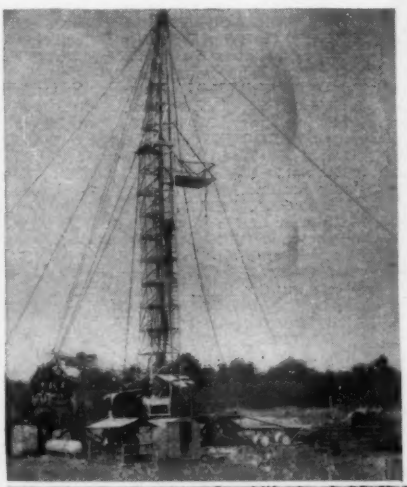
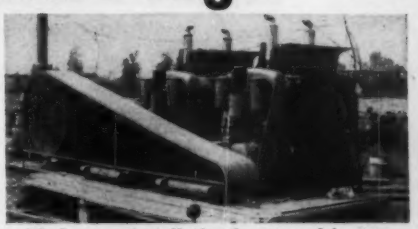


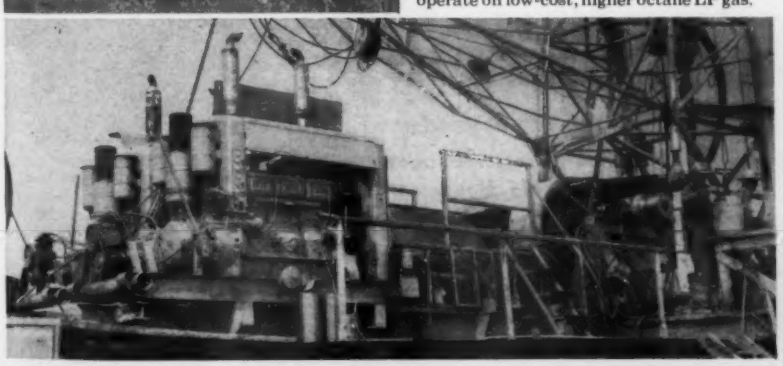
Beene-Hurley Use Low Cost Power on Frank's Rig!

Drillers Beene and Hurley at Bossier City, La., use Frank's portable rig with four Minneapolis-Moline 1210-12A units for power. They are drilling low-cost wells to depths of 6500 feet. The 1210-12A, 12 cylinder unit engines are factory equipped to operate on LP gas or natural gas—the low priced fuels in this area.

Beene and Hurley have mounted two of these units on the drilling table to furnish power to the draw works. These engines are equipped with front power take-off drives and supply 400 hp with LP gas. The other 1210-12A units are remotely located on the mud pump. The complete engineering and installation was done by Beene and Hurley at Shreveport.



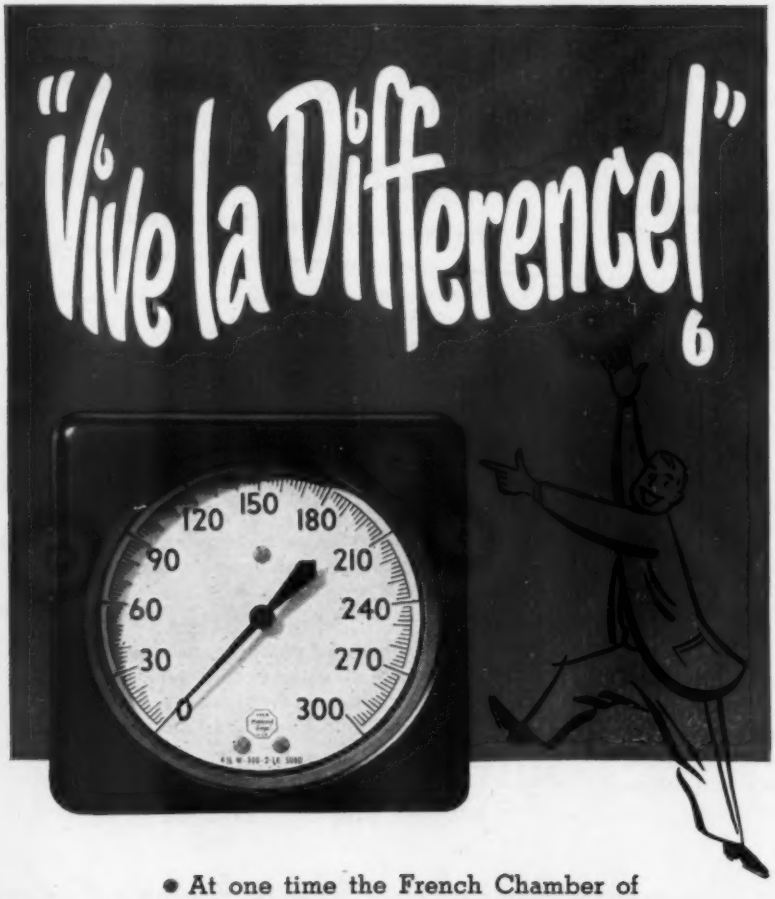
Mud pump installation is powered by two MM 1210-12A's.



Two MM 1210-12 on the drilling table operate on low-cost, higher octane LP gas.

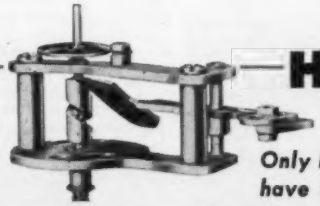
This arrangement combines flexibility of layout with important time saving for setting up the rig. Precision tooling and high production methods account for the extremely low selling price of MM heavy-duty oil field power units. Standardization of parts permits interchangeability which assures easier, lower-cost maintenance.

Sales and service of MM oil field engines are handled by the Shrimpton Manufacturing and Supply Co., with branches at Los Angeles, California; Oklahoma City, Oklahoma; and Kilgore, Texas.



• At one time the French Chamber of Deputies was debating women's suffrage. When one liberal soul pointed out that there was very little difference, after all, between the sexes, a fellow deputy leapt to his feet and shouted with gusto, *"Vive la difference!"*

Two pressure gages may seem alike. But the difference between a HELICOID and any ordinary gage is unique. So much so that otherwise complacent engineers, who usually keep their feet on the ground, have been known to jump with ecstasy and exclaim, *"Vive la difference!"*



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TRADE MARK

Wells, 3-2n-10e, 8 bbl. oil, McClosky, 3,278 ft., TD 3,284 ft.

CANTRELL, SOUTH—Hamilton, June; George & Wrather 1 Droit, 7-7s-5e, 430 bbl. oil, Rosiclare, 3,197-3,200 ft., TD 3,393 ft. 6 wells at year end.

CARLYLE, NORTH—Clinton, January; T. M. Conrey 1 King, 23-3n-3w, 10 bbl. oil, Benoist, 1,147-51 ft., TD 1,151 ft. 37 wells at year end.

CLAREMONT—Richland, November; George & Wrather 1 W. Malone, 17-3n-14w, 2,833,000 cu. ft. gas, Rosiclare, 3,198-3,205 ft., TD 3,315 ft.

ELLERY, WEST—Wayne, August; Skiles Oil Corp. 1 Allison, 23-2s-9e, 285 bbl. oil, lower O'Hara, 3,271-87 ft., and Rosiclare, 3,307-12 ft., TD 3,317 ft. 11 wells at year end.

ENFIELD—White, May; S. L. Deadman & Herndon 1 Dunn, 29-5s-8e, 175 bbl. oil, Aux Vases, 3,280-96 ft., TD 3,296 ft.

FLANNIGAN—Hamilton, July; Stewart Oil Co. 1 Johnson, 28-6s-5e, 148 bbl. oil, Aux Vases, 3,240-53 ft., TD 3,254 ft. 4 wells at year end.

HORD—Clay County, December; Ashland Oil & Refining Co. 1 G. F. Van Dyke, SW SW NE 14-5n-6e, 400 bbl. oil, McClosky, 2,810-18 ft., TD 2,854 ft. 1 well at year end.

INMAN, SOUTH—Gallatin, August; Arnold Valter 1 L. B. Drone, 27-8s-9e, 35 bbl. oil, Cypress, 2,476-83 ft. and 2,486 ft., TD 2,494 ft. (Effective in October, included in Inman West Consolidated pool.)

KENNER, SOUTH—Clay, September; Sohio Petroleum Co. 1 R. Fleming, 2-2n-5e, 65 bbl. oil, Rosiclare, 2,871-76 ft., TD 3,000 ft.

KINMUNDY—Marion, June; Homer Luttrell 1 T. E. Robb, 19-4n-3e, 27 bbl. oil, Bethel, 1,910-17 ft., TD 1,917 ft.

LIVINGSTON, SOUTH—Madison, February; George Zicos 1 Repovsch, 28-6n-6w, 24 bbl. oil, Pennsylvanian, 538-43 ft., TD 543 ft. 3 wells at year end.

LONG BRANCH—Saline, January; W. O. Morgan 1 A. Cole, 20-7s-6e, 47 bbl. oil, McClosky, 3,193-99 ft., TD 3,264 ft.

MARION—Williamson, May; T. M. Pruett 1 Norris-Weisbroht Comm., 7-9s-3e, 25 bbl. oil, Aux Vases, 2,389-95 ft., TD 2,560 ft.

OMAHA, WEST—Saline County, December; Skiles Oil Corp. 1-E Bramlett, SW NE SE 36-7s-7e, 63 bbl. oil, Cypress, 2,517-29 ft., and Aux Vases, 2,836-45 ft., TD 2,845 ft. 2 wells at year end.

ORCHARDVILLE—Wayne, March; Henson Drilling Co. 1 Richison, 29-1n-5e, 28 bbl. oil, McClosky, 2,901-96 ft., TD 2,906 ft.

OSKALOOSA—Clay, March; The Texas Co. 1 C. T. Gabbert, 35-4n-5e, 5 bbl. oil, Benoist, 2,595-2,608 ft., TD 2,891 ft. 34 wells at year end.

PATOKA, WEST—Fayette, October; C. J. Simpson 1 F. Bonnell, 15-4n-1w, 12 bbl. oil, Benoist, 1,419-23 ft., TD 1,425 ft. 7 wells at year end.

RESERVOIR—Jefferson, November; Gulf Refining Co. 1 Illinois Cities water unit, 28-1s-3e, 10 bbl. oil, McClosky, 2,618-22 ft., TD 2,629 ft.

RITTER—Richland, June; Calvert Drilling Co. 1 C. L. Jordan, 25-3n-10e, 991 bbl. oil, Rosiclare, 3,198-3,209 ft., TD 3,219 ft. 2 wells at year end.

ROLAND, WEST—Saline, September; J. F. Balderson 1 B. F. Bruce, 24-7s-7e, 52 bbl. oil, Aux Vases, 2,934-44 ft., TD 3,161 ft.

WHITTINGTON, SOUTH—Franklin, June; Walter Duncan 1 U. S. Coal & Coke, 4-6s-3e, 41 bbl. oil, Cypress, 2,578-2,600 ft., TD 2,953 ft. 10 wells at year end.

NEW PAYS

AKIN, WEST—Franklin, July; Taylor & Schumaker 6 U. S. Coal & Coke Co., 16-6s-4e, 50 bbl. oil, Cypress, 2,698-2,716 ft., TD 2,716 ft.

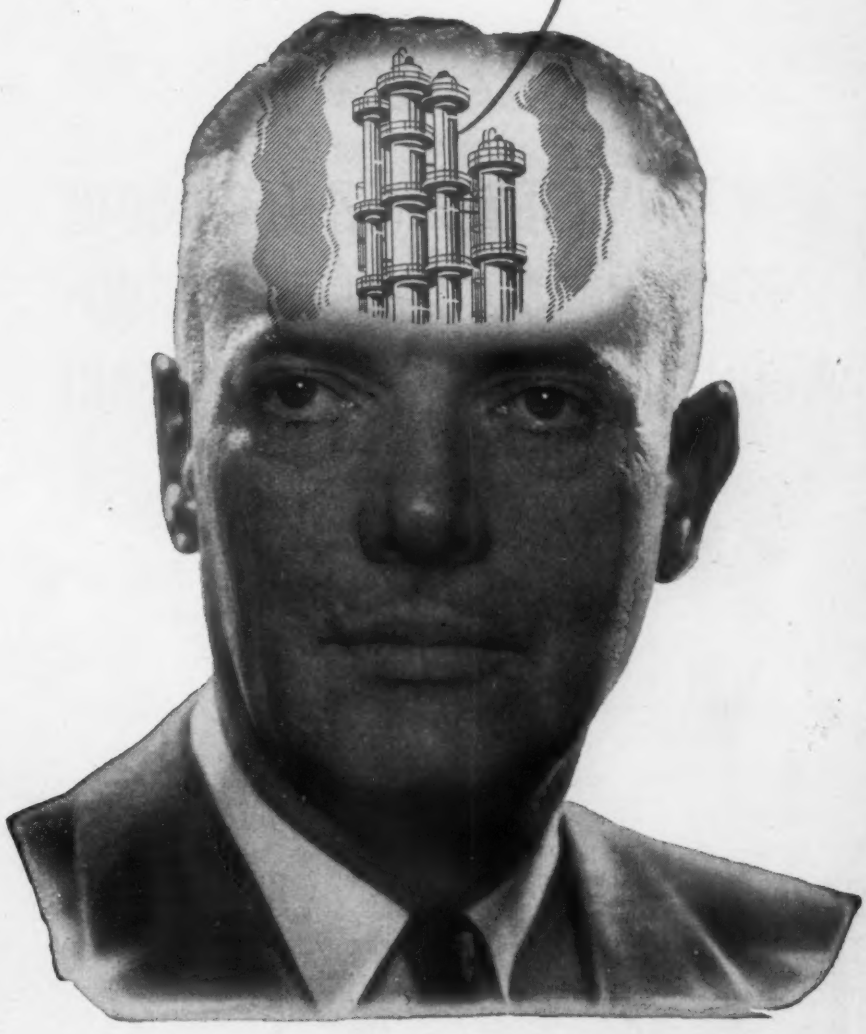
CANTRELL, SOUTH—Hamilton, July; George & Wrather and W. Duncan 1 R. Hunro, 18-7s-5e, 300 bbl. oil, Aux Vases, 3,110-34 ft., TD 3,210 ft. 3 wells at year end.

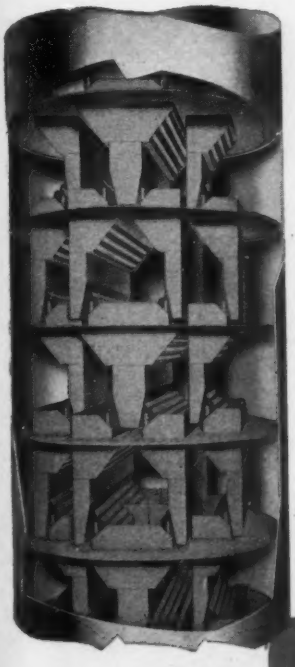
CANTRELL, SOUTH—Hamilton, November; J. A. Wasson 1 Carlisle, 7-7s-5e, 62 bbl. oil, McClosky, 3,323-27 ft., TD 3,327 ft.

CENTERVILLE, EAST—White, March; Fox & Fox 2-A Barbre-Williams, 18-4s-10e, 100 bbl. oil, Palestine, 2,224-30 ft., TD 2,239 ft.

CENTERVILLE, EAST—White, Septem-

to the man with a fractionating problem





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ber; Skelly Oil Co. 3-A Barbre, 18-4s-9e, 31 bbl. oil, Hardinsburg, 2,617-37 ft., TD 3,230 ft.

ELBRIDGE—Edgar, September; National Associated Petroleum Co. and Continental Oil Co. 1-A W. I. Maddock, 36-13n-11w, 26 bbl. oil, Pennsylvanian, 758-75 ft., TD 777 ft.

ELDORADO—Saline, June; Ryan Oil Co. 1 L. T. Stinson, 17-8s-7e, 12 bbl. oil, Palestine, 1,942-50 ft., TD 1,950 ft.

ENFIELD—White, June; Superior Oil Co. 1 T. J. Dunn, 29-5s-8e, 21 bbl. oil, McClosky, 3,420-26 ft., TD 3,497 ft.

EPWORTH—White, February; R. A. Harris 1 Hanna, 29-5s-10e, 25 bbl. oil, Rosiclare-McClosky, 3,113-30 ft., TD 3,199 ft. 2 wells at year end.

GRANDVIEW—Edgar, November; C. H. Murdock 2 Bartmess, 5-12n-13w, 124,000 cu. ft. gas, Salem lime, 565-72 ft., TD 572 ft.

HELENA—Lawrence, August; Gopher Drilling Co. 1 E. Stout et al, 1-2n-13w, 10 bbl. oil, McClosky, 2,386-98 ft., TD 2,460 ft.

INMAN, SOUTH—Gallatin, September; Coy Oil Co. 1 W. Miner, 22-8s-9e, 22 bbl. oil, Tar Springs, 2,153-55 ft., and Cypress, 2,477-97 ft., TD 2,497 ft. (Effective in October, included in Inman West Consolidated pool.)

LONG BRANCH—Hamilton, September; LaGrange Petroleum Corp. 1 Howard, 16-7s-6e, 300 bbl. oil, Palestine, 2,072-81 ft., TD 2,081 ft.

MAPLEGROVE, EAST—Edwards, August; Miracle & Steber 1 J. A. Weir, 12-1n-10e, 59 bbl. oil, Waltersburg, 2,397-2,408 ft., TD 3,215 ft.

MAUD, NORTH CONSOLIDATED—Wabash, March; Dale Hopkins 1 G. Wirth, 18-1s-13w, 190 bbl. oil, Tar Springs, 2,115 ft., TD 2,672 ft. 6 wells at year end.

MAUNIE, WEST—White, September; Skiles Oil Corp. 1 G. Akerman, 3-6s-10e, 35 bbl. oil, Bethel, 2,819-38 ft. and Aux Vases, 2,957-63 ft., TD 2,963 ft.

PANAMA—Bond, January; Mayer Drilling Co. 1 Brown, 30-7n-3w, 8 bbl. oil, Golconda lime, 701-18 ft., TD 718 ft. 2 wells at year end.

PARKERSBURG, SOUTH—Edwards, June; Cullum & Lawhead 1 F. Koehler, 8-1n-14w, 41 bbl. oil, Pennsylvanian, 1,387-94 ft., TD 1,394 ft. 2 wells at year end.

ST. FRANCISVILLE, EAST—Lawrence, June; J. E. Bauer 2 J. M. Brevoort, 10-2n-11w, 40 bbl. oil, Hardinsburg, 1,457-63 ft., TD 1,467 ft. 3 wells at year end.

WOBURN, SOUTH—Bond, June; Miami Operating Co. 2-A Besserman, 16-6n-2w, 40 bbl. oil, Cypress, 860-68 ft., TD 868 ft. 7 wells at year end.

WOBURN—Bond, September; D. Hopkins 1 Nelson, 10-6n-2w, 14 bbl. oil, Cypress, 882-85 ft., TD 885 ft. 2 wells at year end.

INDIANA

NEW POOLS

BEAMEN, SOUTH—Knox, May; Don McCumber 1 D. B. Alexander, 42-3n-11w, 5 bbl. oil, Rosiclare 1,879-82 ft., TD 1,886 ft.

BLACK RIVER—Posey, July; Illinois Mid-Continent Co. 1 Ford, 18-4s-13w, 46 bbl. oil, Clore 1,867-80 ft., TD 1,880 ft. 2 wells at year end.

CLAY BANK—Pike, July; Ryan Oil Co. 3 Enos Coal Co., 4-3s-8w, 102 bbl. oil, Cypress, 1,372-79 ft., TD 1,379 ft. 5 wells at year end.

CUMBACK—Daviess, August; B-L-S Drilling Co. 1 Joseph Allison, 35-2n-7w, 8 bbl. oil, McClosky 1,056-64 ft., TD 1,117 ft.

ELBERFIELD—Warrick, November; National Association Petroleum Co. 1 Charles Yeck, 28-4s-9w, 22 bbl. oil, O'Hara 1,898-1,902 ft., TD 2,082 ft. 2 wells at year end.

FAIRBANKS—Sullivan, September; Carter Oil Co. 1 Herman Drake, 14-9n-10w, 180 bbl. oil, Devonian 2,250-53 ft., TD 2,253 ft. 8 wells at year end.

FORD, SOUTH—Posey, March; Ashland Oil & Refining Co. 1 J. Appel, 28-6s-12w, 67 bbl. oil, Cypress 2,304-19 ft., TD 2,319 ft. 27 wells at year end.

FRANCISCO, SOUTH—Gibson, June; George & Wrather 1 Weber 36-2s-10w, 96 bbl. oil, Aux Vases, 1,877-82 ft., TD 2,020 ft. 2 wells at year end.

GRAFTON, SOUTH—Posey, May; C. E. Skiles 1 Alldredge, 34-6s-14w, 81 bbl. oil, Cypress 2,484-2,495 ft., TD 2,505 ft. 6 wells at year end.

HARDIS CHAPEL—Knox, June; N. W. Strange 1 W. Holman Estate, 11-1n-9w, 15 bbl. oil, Rosiclare 1,478-90 ft., TD 1,538 ft.

HEILMAN—Warrick, June; H. C. Farmer 1 L. & M. Robinson, 20-4s-6w, 15 bbl. oil, McClosky 1,290-93 ft., TD 1,293 ft.

HUNTINGBURG—Dubois, October; Gale & Walters 1 William Struckman, 17-3s-15w, 15 bbl. oil, McClosky 923-25 ft., TD 925 ft. 2 wells at year end.

JASPER—Dubois, April; B & J Developing Co. 2 J. F. Hochgensang, 7-2s-4w, 20 bbl. oil, McClosky 668-81 ft., TD 689 ft. 5 wells at year end.

JIMTOWN—Gibson, October; Louis Galambos 1 A. B. Phillips, 9-3s-13w, 50 bbl. oil, Pennsylvanian 1,165-72 ft., TD 1,172 ft.

MONROE CITY, WEST—Knox, June; Aurora Gasoline Co. 1 Wells, 165-2n-9w, 10 bbl. oil, Aux Vases lime 1,536-44 ft., TD 1,940 ft.

MONROE CITY, NORTH—Knox, August; H. & V. Oil Co. et al. 1 Kensler-Dreman, 40-3n-9w, 70 bbl. oil, Aux Vases 1,468-70 ft., TD 1,470 ft. 7 wells at year end.

OLIVER, SOUTH—Posey, April; Aurora Gasoline Co. et al 1 W. Jackson, 10-6s-13w, 170 bbl. oil, Aux Vases 2,778-86 ft., TD 2,800 ft. 7 wells at year end.

SANDBORN—Knox, July; B-L-S Drilling Co. 1 Schloot, 2-5n-7w, 51 bbl. oil, McClosky 878-92 ft., TD 1,251 ft.

SAVAH—Posey, November; William Schuller 1 L. Keck, 11-6s-14w, 8 bbl. oil, Tar Springs 2,209-26 ft., TD 2,228 ft.

STATE LINE—Vigo, September; F. B. Cline 3 Crews, 33-12n-10w, 20 bbl. oil, Devonian 1,827-33 ft., and 1,841-48 ft., TD 1,854 ft. 2 wells at year end.

TERMINAL—Posey, April; Indiana Farm Bureau 1 Fee, 6-7s-13w, 80 bbl. oil, Hardins-

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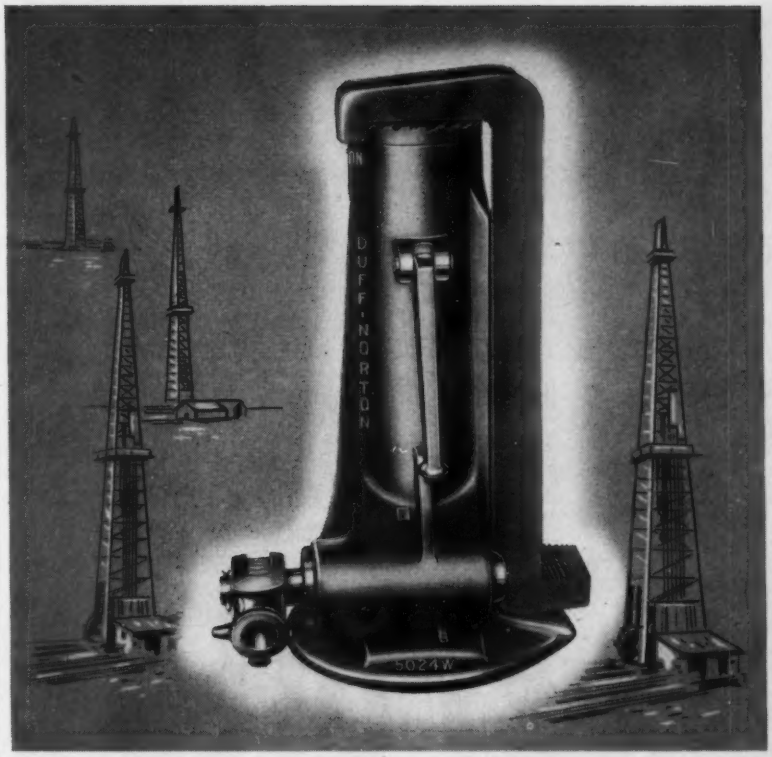

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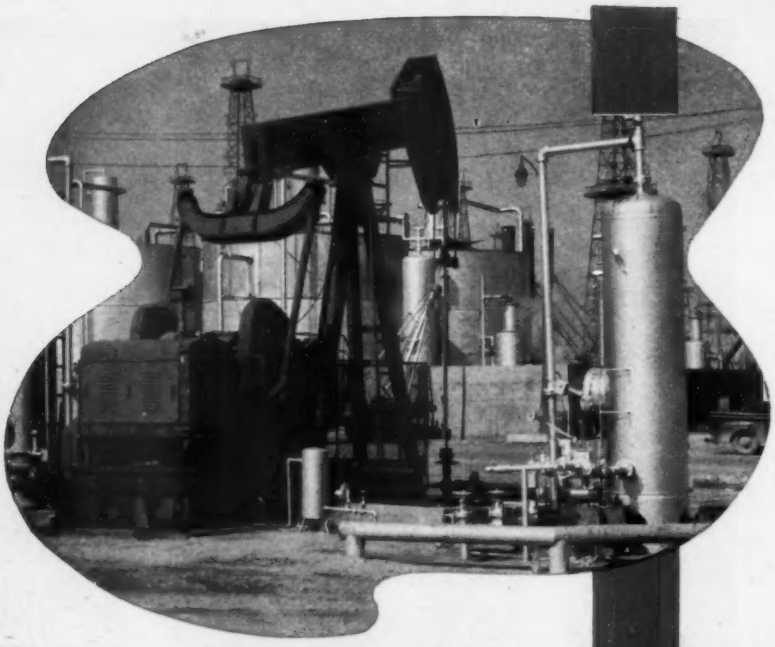

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burg 2,418-34 ft., TD 3,032 ft. 2 wells at year end.

WARRENTON, EAST—Gibson, February; Joe Reznik 1 Lillian Butler, 15-4s-10w, 25 bbl. oil, Jackson 1,799-1,808 ft., TD 1,818 ft.

WESTPHALIA—Knox, August; F. J. Ellison 1 Woods, 28-5n-7w, 210 bbl. oil, McClosky 944-53 ft., TD 953 ft. 5 wells at year end.

UNNAMED—Franklin, July; Lloyd Kirklin et al. 1 W. H. Clawson, 28-10n-2w, 15,000 cu. ft. gas, Trenton 604-704 ft., TD 704 ft.

NEW PAYS

CLAYBANK—Pike, October; Ryan & Sharp 12-A Enos Coal Co., 3-3s-8w, 25 bbl. oil, Jackson 1,231-36 ft., TD 1,240 ft. 4 wells at year end.

FORD, SOUTH—Posey, May; W. C. McBride, Inc., 2 Feldman, 27-6s-12w, 160 bbl. oil, Mansfield 1,154-85 ft., TD 1,185 ft. 9 wells at year end.

FORD, SOUTH—Posey, June; C. G. Walker 1 L. L. Lurker, 27-6s-12w, 12 bbl. oil, Waltersburg 1,815-20 ft., TD 1,830 ft.

FORD, SOUTH—Posey, October; Ashland Oil & Refining Co. and Dee Miller, 33-6s-12w, 35 bbl. oil, Degonia 1,634-44 ft., TD 2,830 ft.

FRANCISCO, SOUTH—Gibson, July; George & Wrather 1 Temme, 25-2s-10w, 121 bbl. oil, O'Hara 1,880-84 ft., TD 1,884 ft.

HOUSLER—Posey, October; G. L. Reasor 1 Peter Hahn, 2-7s-12w, 150 bbl. oil, Pennsylvanian 1,460-91 ft., TD 1,491 ft.

LYLSE—Gibson, August; T. & H. Corp. 1 Deep Vein Coal Co., 1-2s-12w, 20 bbl. oil, Salem 2,723-43 ft., TD 2,802 ft.

MONTGOMERY—Daviess, February; Tecumseh Coal Co. 1 Fee, SE SE NW 16-3n-6w, IP 25 bbl. (estimated), Salem (depth information not released—estimated total depth 1,250 ft.).

MONROE CITY, NORTH—Knox, December; Graham Development Co. 3 Anna E. Meyers, 1-2n-9w, 45 bbl. oil, Rosiclare 1,556-68 ft., TD 1,568 ft.

MUMFORD—Posey, July; Calvert Drilling Co. 1 Mumford, 33-3s-13w, 451 bbl. oil, Degonia 1,763-80 ft., and Palestine 1,853-63 ft., TD 2,015 ft. 8 wells at year end.

OLIVER, SOUTH—Posey, July; George S. Engle 1-A Esche, 10-6s-13w, 200 bbl. oil, McClosky 2,830-33 ft., TD 2,833 ft.

PATOKA, EAST—Gibson, October; Jack Richardson Oil Well Service Co. 1 John Pauley, 19-1s-10w, 100 bbl. oil, Aux Vases 1,929-39 ft., TD 1,940 ft.

PIROQUE LAKE—Posey, April; Sinclair Oil & Gas Co. 1 S. Klein, 13-8s-14w, 35 bbl. oil, Waltersburg 1,855-67 ft., TD 2,724 ft. 3 wells at year end.

PLAINVILLE—Daviess, February; B. L. & S. Drilling Co. 2 Plainville Unit 8, 2-4n-7w, 96 bbl. oil, Aux Vases 724-44 ft., TD 744 ft. 25 wells at year end.

ST. WENDELLS, EAST—Posey, January; Carter Oil Co. 1 Fred Wessel, 25-5s-12w, 108 bbl., Aux Vases lime 2,570-98 ft., TD 2,791 ft.

SPRINGFIELD—Posey, February; Carter Oil Co. 4 Ida Nichols, 29-5s-13w, 592 bbl. oil, Aux Vases 2,915-25 ft., TD 2,925 ft. 3 wells at year end.

STOOKER, EAST—Posey, February; Superior Oil Co. 1 P. Jourdon, 4-7s-12w, 50 bbl. oil, Cypress 2,291-97 ft., TD 2,300 ft. 4 wells at year end.

SULLIVAN—Sullivan, May; F. B. Cline 1 Ogle, 32-8n-9w, 14 bbl. oil, Pennsylvanian 680-87 ft., TD 687 ft.

TERMINAL—Posey, April; Russell Bauer et al. 1 Posey County Poor Farm, 6-7s-13w, 46 bbl. oil, Tar Springs 2,280-91 ft., TD 2,455 ft. 4 wells at year end.

UNION-BOWMAN—Pike, March; Wabash Petroleum Co. 4 L. Trosler, 29-1n-9w, 30 bbl. oil, Salem 1,935-39 ft., TD 1,939 ft.

UNION-BOWMAN—Pike, June; R. D. Brown, Inc., 1 Frederick-Selby, 28-1n-9w, 15 bbl. oil, Osage 2,222-23 ft., TD 2,223 ft. 2 wells at year end.

EASTERN KENTUCKY

NEW POOLS

SPRINGFIELD.—Breathitt, June; United Carbon Co. 4 E. J. Evans Fee, 1-M-77, Big lime (Mississippian), 50 bbl., TD 1,377 ft.

BRIAR FORK—Elliott, July; Virgin Oil Co. 1 Ferguson, 6-S-78, Weir sand (Mississippian), oil well, TD 896 ft.

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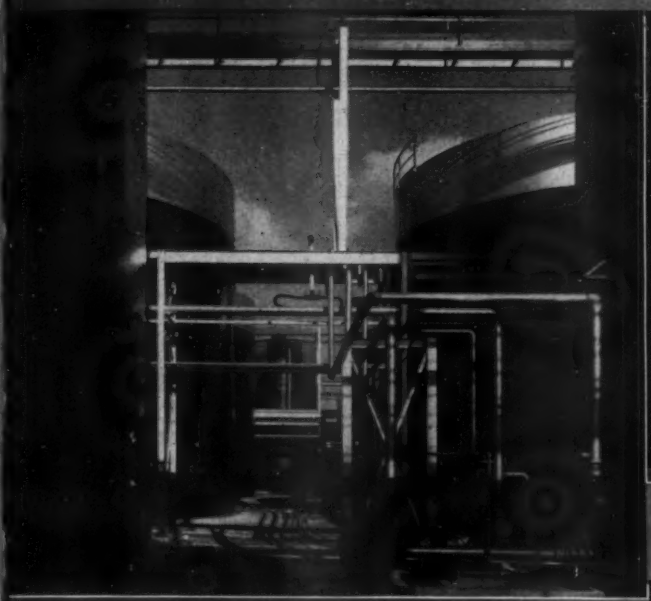

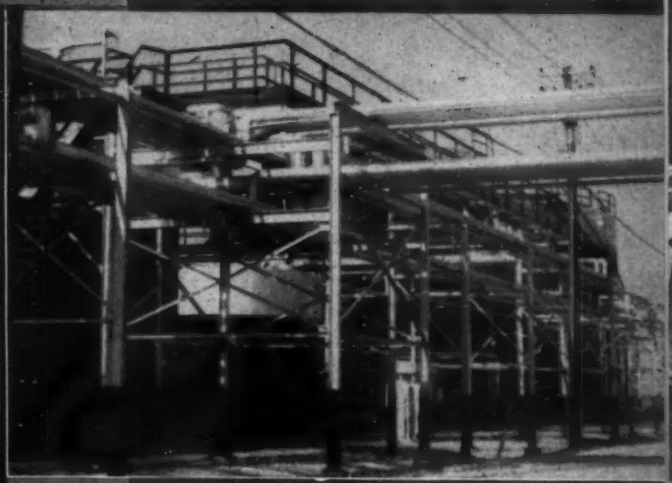

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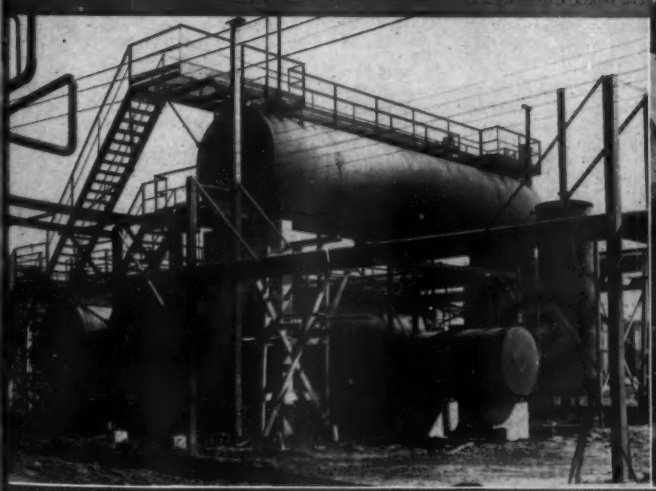

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REVIEW and FORECAST

Locations and Results of Wells Drilled Below 12,500 Ft.

TEXAS GULF COAST

District 3

DEEP WELLS

HIGH ISLAND—Galveston, March; Placid Oil Co. 9 Roberts & Mueller, John Grogan Survey, A-104, TD 12,515 ft., 178 bbl. oil, gravity 37.9°, Oligocene-Frio, 8,314-20 ft.

OLD OCEAN—Brazoria, August; J. S. Abercrombie Co. 20 B.R.L.D., Chas. Breen League, TD 15,068 ft., 179 bbl. oil, gravity 48.9°, Frio, 10,424-38 ft.

WILDCAT—Chambers, February: Placid Oil Co. 1 G. R. Canada, J. T. White Sur. 4, A-402, TD 12,515 ft., dry.

WILDCAT—Chambers, September; Sun Oil Co. 1 Brandt, Henry Baker Sur., TD 12,506 ft., dry.

WILDCAT—Jefferson, July; Meredith-Clegg & Hunt et al 1 Earl C. Hankamer et al unit, T&NO Sur., Section 136, (J. W. Webb Survey, A-620), TD 12,809 ft., 50 bbl. condensate, gravity 51.6°, Frio, 12,607-70 ft.

WILDCAT—Matagorda, September; Skelly Oil Co. 1 Edna Roades, Maria Cummins League, TD 12,582 ft., dry.

SOUTHWEST TEXAS

District 4

DEEP WELL

WILDCAT—Webb, August; Sunray Oil Corp. 1 O. W. Killam, G&SF RR Co. Sur. 1808, TD 13,706 ft., dry.

EAST TEXAS

District 6

DEEP WELL

WILDCAT—Upshur, February; Tide Water Associated Oil Co. and Seaboard Oil Co. 1 C. K. Wade, John H. Field Survey, TD 13,978 ft., dry.

WEST TEXAS

Districts 7-C and 8

DEEP WELLS

PECK—Midland, August; Trebol Oil Co. 1-P Josie Faye Peck, 20-41-T4S-T&P, TD 13,347 ft., 840 bbl. oil, Pennsylvanian, 10,408-14 ft.

PECK—Midland, August; Sinclair Oil & Gas Co. 1 J. T. Sanders, 16-41-T4S-T&P, TD 13,288 ft., 909 bbl. oil, Ellenburger, 13,245-87 ft.

PECK—Midland, September; General American Oil Co. 2-E Josie Peck, 21-41-T4S-T&P, TD 13,300 ft., 1,283 bbl. oil, Pennsylvanian, 10,305-95 ft.

PECK—Midland, November; Benson-Montin, Inc. 1 Abbie Peck, TD 13,307 ft., 731 bbl. oil, Ellenburger, 13,160-13,300 ft.

PECK—Midland, November; General American Oil Co. 3-E Josie Faye Peck, 21-41-T4S-T&P, TD 13,310 ft., 385 bbl., Pennsylvanian, 10,317-10,418 ft., 616 bbl., Ellenburger, 13,178-13,285 ft.

PECK—Midland, November; Norwood Drilling Co. 1-E Josie Faye Peck, 30-41-T4S-T&P, TD 13,304 ft., 651 bbl. oil, Ellenburger, 13,195-13,270 ft.

PEGASUS—Upton, February; Magnolia Petroleum Co. 1-B TXL, 31-40-T4S-T&P, TD 12,995 ft., 518 bbl. oil, Ellenburger, 12,793-12,995 ft.

PEGASUS—Upton, March; Republic Natural Gas Co. 1 American Republics Corp., 6-40-T5S-T&P, TD 13,160 ft., 3,183 bbl. oil, Ellenburger, 13,025-13,160 ft.

PEGASUS—Upton, March; Phillips Petroleum So. 1-BB TXL, 25-41-T4S-T&P, TD 13,703 ft., 456 bbl. oil, Ellenburger, 13,090-13,200 ft.

PEGASUS—Upton, April; Magnolia Petroleum Co. 2-36 Roy Glass, 36-41-T4S-T&P, TD 13,065 ft., 2,041 bbl. oil, Ellenburger, 12,822-13,065 ft.

PEGASUS—Midland, May; Magnolia Petroleum Co. 3-30 Roy Glass, 30-40-T4S-T&P, TD 13,190 ft., 1,290 bbl. oil, Ellenburger, 13,015-13,190 ft.

PEGASUS—Upton, June; Magnolia Petroleum Co. 1-C TXL, 61-40-T4S-T&P, TD 13,140 ft., 1,530 bbl. oil, Ellenburger, 13,010-13,140 ft.

PEGASUS—Upton, June; Phillips Petroleum Co. 1-DD TXL, 31-40-T4S-T&P, TD 13,207 ft., 2,079 bbl. oil, Ellenburger, 12,580-13,207 ft.

PEGASUS—Upton, June; Sharples Oil Corp. 1-E-43 TXL, 43-40-T4S-T&P, TD 13,133 ft., 750 bbl. oil, Ellenburger, 12,896-13,133 ft.

PEGASUS—Upton, August; Magnolia Petroleum Co. 2-B TXL, 31-40-T4S-T&P, TD 13,056 ft., 575 bbl. oil, Ellenburger, 12,745-13,056 ft.

PEGASUS—Upton, September; Magnolia Petroleum Co. 3-B TL, 31-40-T4S-T&P, YF 13,061 ft., 506 bbl. oil, Ellenburger, 12,765-13,061 ft.

PEGASUS—Upton, September; Magnolia Petroleum Co. 1-D TXL, 43-40-T4S, T&P, TD 13,133 ft., 413 bbl. oil, Ellenburger, 13,002-13,133 ft.

PEGASUS—Upton, October; Republic Natural Gas Co. 2 V. J. Powell, TD 13,093 ft., 587 bbl. oil, Ellenburger, 12,970-13,093 ft.

PEGASUS—Upton, October; Magnolia Petroleum Co. 1-E TXL, 37-41-T4S-T&P, TD 13,065 ft., 603 bbl. oil, Ellenburger, 12,730-13,065 ft.

PEGASUS—Upton, October; Magnolia Petroleum Co. 3A TXL, 31-40-T4S, T&P, TD 12,993 ft., 546 bbl. oil, Ellenburger, 12,735-12,993 ft.

PEGASUS—Upton, October; Magnolia Petroleum Co. 3-36 Roy Glass, 36-41-T4S-T&P, TD 12,969 ft., 830 bbl. oil, Ellenburger, 12-660-12,969 ft.

PEGASUS—Upton, October; Sharples Oil Corp. 1-E-37 TXL, 37-41-T4S-T&P, TD, 13,138 ft., 1,955 bbl. oil, Ellenburger 12,740-13,138 ft.

PEGASUS—Upton, October; Republic Natural Gas Co. 2 American Republics Corp., 6-40-T5S-T&P, TD 13,104 ft., 507 bbl. oil, Ellenburger, 13,035-13,104 ft.

PEGASUS—Upton, October; Magnolia Petroleum Co. 2-C TXL, 41-40-T4S-T&P, TD 13,130 ft., 628 bbl. oil, Ellenburger, 12,914-13,130 ft.

PEGASUS—Upton, November; Magnolia Petroleum Co. 2 T. R. Wilson, 42-40-T4S-T&P, TD 13,054 ft., 638 bbl. oil, Ellenburger, 12,952-13,045 ft.

PEGASUS—Upton, November; Magnolia Petroleum Co. 1-F TXL, 1-41-T5S-T&P, TD 13,126 ft., 404 bbl. oil, Ellenburger, 13,025-13,126 ft.

PEGASUS—Upton, November; Sharples Oil Corp. 2-E-43 TXL, 43-40-T4S-T&P, TD 13,136 ft., Ellenburger, 13,123-33 ft.

WILDCAT—Gaines, April; Forest Oil Corp. and Anderson-Prichard 1-A Parmer, Parmer County School Lands Survey, 15 miles southeast Seminole, TD 14,150 ft., 203 bbl. oil, Ellenburger, 14,085 ft.

WILDCAT—Martin, September; Texas Co. 1-X State, 17-7-University Lands, TD 13,420 ft., 14 bbl. until depleted and recompleted in Devonian, Pennsylvanian, 13,275-13,325 ft.

WILDCAT—Martin, November; Gulf Oil Corp. 1-E Glass "B," 13-39-T1N-T&P, TD 12,915 ft., dry.

WILDCAT—Midland, March; York & Harper, Inc. 1-A TXL, 25-39-T3S-T&P, TD 13,250 ft., Ellenburger, 13,130 ft.

WILDCAT—Midland, March; General American Oil Co. 1-E Josie Faye Peck, 21-41-T4S-T&P, TD 13.397 ft., 1,055 bbl. oil, Ellenburger, 13,135-13,250 ft.

WILDCAT—Midland, June; Magnolia Petroleum Co. 2 Roy Parks, Section 10, M. C. Daugherty Survey, TD 12,970 ft., 785 bbl. oil, Ellenburger, 12,955-70 ft.

WILDCAT—Midland, December; Magnolia Petroleum Co. 1 H. F. Timmerman. TD 13,030 ft., 400 bbl. oil, Pennsylvanian 10,440-85 ft.

WILDCAT—Upton, February; Humble Oil & Refining Co. 1 Ralph Pembroke, 1-X-C. C. DeWitt Survey, TD 12,660 ft., 34 bbl. oil, Spraberry, 7,080-7,100 ft.

WILDCAT—Upton, January; Humble Oil & Refining Co. 1 Mrs. Z. Oswalt, 12-B-CCSD&RGNG, TD 12,732 ft., dry.

WILDCAT—Upton, December; Sinclair Oil & Gas Co. 1 G. R. Davis, 20-41-T5S-T&P, TD 13,363 ft., 174 bbl. oil, Ellenburger, 13,153-78 ft.

SOUTHEAST NEW MEXICO

DEEP WELLS

KNOWLES—Lea, April; Amerada Petroleum Corp. 1-A Rose Eaves, 2-17s-38e, TD 12,585 ft., 1,500 bbl. oil, Devonian, 12,478-12,585 ft.

KNOWLES—Lea, October; Amerada Petroleum Corp. 1 Cooper, 2-17s-38e, TD 12,620 ft., dry.

WILDCAT—Eddy, February; Humble Oil & Refining Co. 1 Federal-Wiggs, 31-24s-27e, TD 14,865 ft., dry.

WILDCAT—Eddy, October; Gulf Oil Corp. 1 Sams-State, 17-15s-33e, TD 14,126 ft., dry.

WILDCAT—Lea, January; Gulf Oil Corp. 1 Mrs. Maud Saunders, 34-14s-33e, TD 12,930 ft., 984 bbl. oil, Pennsylvanian, 9,865-82 ft.

WILDCAT—Lea, March; Texas Co. 1 Ertel, 27-16s-38e, TD 13,310 ft., dry.

WILDCAT—Lea, March; Shell Oil Co. 1 P. Carter, 32-17s-39e, TD 14,044 ft., dry.

SOUTH LOUISIANA

DEEP WELLS

ABBEVILLE—Vermilion, September; Continental Oil Co. 1 N. P. Harrington et al., 67-12s-3e, TD 12,523 ft., 40 bbl. condensate, 10,562-71 ft.

BANCROFT, NORTH—Beauregard, July; Atlantic Refining Co. A-2 Sabine Lumber Co., 23-5s-13w, TD 12,701 ft., 162 bbl. oil, 9,290-9,306 ft.

BATEMAN LAKE—St. Mary, November; The Texas Co. 1-A Wax Bayou Co., Inc., 32-16s-12e, TD 13,002 ft., 223 bbl. oil, 10,936-41 ft.

BLUE BAYOU—Iberville, July; Stanolind Oil & Gas Co. 1-A Grief Bros., 30-9s-10e, TD 12,998 ft., dry.

BAY DE CHENE—Jefferson, January; The Texas Co. A-9 State Lease 1217-Bay De Chene, Twp. 20s-4e, TD 12,692 ft., 17 bbl. condensate, 10,668-82 ft.

BRANCH—Acadia, September; Union Sulphur Co. 1-A Kahn, 58-8s-2e, TD 13,113 ft., dry.

BAY MARCHAND BLOCK 2—Lafourche, August; The California Co. F-4 State Lease 1366, offshore, TD 13,053 ft., dry.

BAY ST. ELAINE—Terrebonne, February; The Texas Co. 2-2 State Lease 199-Bay St. Elaine unit, 4-22s-18e, TD 13,238 ft., 352 bbl. oil, 12,754-71 ft.

COX BAY—Plaquemines, November; Richardson & Bass 1-H State Lease 1794, 4-18s-16e, TD 13,429 ft., 108 bbl., 8,980-84 ft. and 9,114-17 ft.

DE LARGE—Terrebonne, April; Union Producing and Texas Gulf Producing 2 Fitzpatrick and Vexard et al., unit, 77-19s-

17e, TD 13,417 ft., 52,000,000 cu. ft. gas, 13,208-13,300 ft.

DE LARGE—Terrebonne, April; Union Producing 4 Buckley-Bourg, 36-19s-16e, TD 13,941 ft., dry.

DELTA DUCK CLUB—Plaquemines, July; The Texas Co. 1 Delta Duck Club unit 3, 35-20s-19e, TD 12,829 ft., dry.

DELTA DUCK CLUB—Plaquemines, October; The Texas Co. 1 Delta Duck Club unit 4, 19-21s-20e, TD 13,510 ft., dry.

DUCK LAKE—St. Martin, April; Humble Oil & Refining Co. 1 Salt Domes, Inc. et al., 36-14s-11e, TD 13,000 ft., 2,012,000 cu. ft. of gas, 12,460-72 ft.

DUCK LAKE—St. Martin, April; Hunt Oil and Arkansas Fuel Co. 2 State Lease 1392, 2-15s-11e, TD 12,760 ft., 228 bbl. oil, 11,636-40 ft.

DUCK LAKE—St. Martin, June; Humble Oil & Refining Co. 2 R. H. Goodrich et al., 2-15s-11e, TD 12,891 ft., 211 bbl. oil, 11,470-74 ft.

DUCK LAKE—St. Martin, June; Humble Oil & Refining Co. E-2 Schwing Lumber & Shingle Co., 3-15s-11e, TD 12,390 ft., 170 bbl. oil, 11,828-30 ft.

DUCK LAKE—St. Martin, July; Hunt Oil and Arkansas Fuel Co. 3 State Lease 1392, 3-15s-11e, TD 12,544 ft., 248 bbl. oil, 11,474-78 ft.

DUCK LAKE—St. Martin, July; Ohio Oil Co. and Humble Oil & Refining Co. 1 Breaux, 35-14s-11e, TD 13,004 ft., 800 bbl. oil, 11,473-77 ft.

EUGENE ISLE BLOCK 32—St. Mary, September; Pure Oil Co. B-1 State Lease 834, offshore, TD 13,717 ft., dry.

EUGENE ISLE BLOCK 32—St. Mary, October; Sun Oil Co. A-1 State Lease 1537, offshore, TD 13,874 ft., 1,600,000 cu. ft. of gas, 11,307-37 ft.

EUGENE ISLE BLOCK 51—St. Mary, January; Magnolia Petroleum Co. B-1 State Lease 843, offshore, TD 14,048 ft., 1,350,000 cu. ft. of gas, Miocene, 9,449-51 ft.

EUGENE ISLE BLOCK 58—Terrebonne, January; Magnolia Petroleum Co. B-1 State Lease 673, offshore, TD 13,800 ft., 7 bbl. condensate, Miocene, 11,206-08 ft.

EUGENE ISLE BLOCK 110—Iberia, October; Magnolia Petroleum Co. C-2 State Lease 685, offshore, TD 13,641 ft., 2,100,000 cu. ft. of gas, 12,168-74 ft.

EUGENE ISLE BLOCK 110—Iberia, October; Magnolia Petroleum Co. 1 State Lease 680, offshore, TD 14,525 ft., dry.

FOUR ISLE DOME—Terrebonne, August; Superior Oil Co. 2 L. L. & E. unit 9, 13-21s-16e, TD 12,798 ft., ungaged gas well, 11,860-75 ft.

GRAND ISLE BLOCK 16—Jefferson, July; Humble Oil & Refining Co. D-2 State Lease 799, offshore, TD 13,100 ft., dry.

GRAND ISLE BLOCK 16—Jefferson, October; Humble Oil & Refining Co. D-4 State Lease 799, offshore, TD 13,822 ft., dry.

LAKE BARRE—Terrebonne, January; The Texas Co. 28-1 State Lease 199-Lake Barre unit, 30-21s-19e, TD 13,752 ft., dry.

LAKE BARRE—Terrebonne, April; The Texas Co. 29-3 State Lease 199-Lake Barre unit, TD 13,384 ft., 200 bbl. oil, 13,002-28 ft.

LAKE BARRE—Terrebonne, September; The Texas Co. 29-4 State Lease 199-Lake Barre unit, 31-21s-19e, TD 13,994 ft., 384 bbl. oil, 13,895-13,990 ft.

LAKE DECADE—Terrebonne, November; Superior Oil Co. 5 Louisiana Terre Co., Inc., 34-19s-15e, TD 13,032 ft., dry.

LAKE MISERE—Cameron, July; pool opener, Superior Oil Co. L-1 Miami Corp., 34-13s-5w, TD 13,751 ft., 189 bbl. condensate, Miocene, 8,890-96 ft.

LAKE RACCOURCI—Lafourche, March; new pay, Humble Oil & Refining Co. 2 State Lease 1480, TD 13,780 ft., 483 bbl. oil, 12,992-13,003 ft.

LAKE RACCOURCI—Lafourche, June; new pay, Humble Oil & Refining Co. 1 Lake Raccourci State Lease 1451, TD 13,000 ft., 52 bbl. condensate, 8,970-9,010 ft.

LAKE RACCOURCI—Lafourche, July; Humble Oil & Refining Co. 2 State Lease 1451, Tract 3379, TD 14,176 ft., dry.

LAKE SAND—Iberia, May; Humble Oil & Refining Co. 2 State Lease 1703, TD 12,981 ft., dry.

LAKE SAND—Iberia, August; Humble Oil & Refining Co. 3 State Lease 1703-West Cote Blanche Bay, TD 12,500 ft. dry.

MANILA VILLAGE—Jefferson, April; Hunt Oil Co. 1 L. L. & E., 38-18s-24e, TD 13,308 ft., 237 bbl. oil, 12,787-95 ft.

MANILA VILLAGE—Jefferson, October; Tide Water Associated Oil Co. 1 Watt, 35-18s-24e, TD 13,424 ft., dry.

OPELOUSAS—St. Landry, June; Magnolia Petroleum Co. 1 Alice Rozas, 41-6s-4e, TD 14,000 ft., 225 bbl. condensate, 11,412-22 ft.

POINTE-A-LA-HACHE—Plaquemines, March; Richardson & Bass 3-E Humble-O. S. Livaudais, Sr., et al., TD 12,580 ft., dry.

SAVOY—St. Landry, June; Stanolind Oil & Gas Co. C-1 L. & M. Savoy, 25-6s-1e, TD 12,610 ft., 87 bbl. oil, 8,946-50 ft.

SECTION 28—St. Martin, April; Gulf Refining Co. 2 Melancon, 31-9s-7e, TD 12,792 ft., 160 bbl. oil, 11,710-20 ft.

TIMBALIER BLOCK 52, SOUTH—Terrebonne, September; pool opener, Humble Oil & Refining Co. A-3 State Lease 1428, offshore, TD 13,015 ft., 245 bbl. oil, Miocene, 12,111-14 ft.

TURTLE BAYOU—Terrebonne, October; new pay and extension, Shell Oil Co. 3 Continental Land & Fur Co., 28-17s-14e, TD 14,000 ft., 26 bbl. oil, Miocene, 11,233-41 ft.

VALENTINE—Lafourche, June; new pay, J. W. Brown 2 South Coast Corp. et al., 100-17s-20e, TD 12,548 ft., 224 bbl. oil, 11,880-84 ft.

VALENTINE—Lafourche, September; The Texas Co. and Pan American Production 1 O. J. Mire et al., 102-17s-20e, TD 13,001 ft., dry.

VENICE—Plaquemines, October; Tide Water Associated Oil Co. 6 Rectangle Ranch, 30-21s-30e, TD 12,648 ft., dry.

WEEKS ISLAND—Iberia, January; Shell Oil Co. 6 Smith-State unit 1, 13-14s-6e, TD 14,350 ft., 383 bbl. oil, Miocene, 13,950-65 ft.

WEEKS ISLAND—Iberia, January; Shell Oil Co. 1 Weeks-Gall State unit 2, 12-14s-6e, TD 14,476 ft., 540 bbl. oil, Miocene 14,226-41 ft.

WEEKS ISLAND—Iberia, February; Shell Oil Co. A-5 Weeks Island State, 13-14s-16e, TD 13,350 ft., 391 bbl. oil, Miocene, 13,248-62 ft.

WEEKS ISLAND—Iberia, March; extension, Gulf Refining Co. 1 Provost-Cyr unit,

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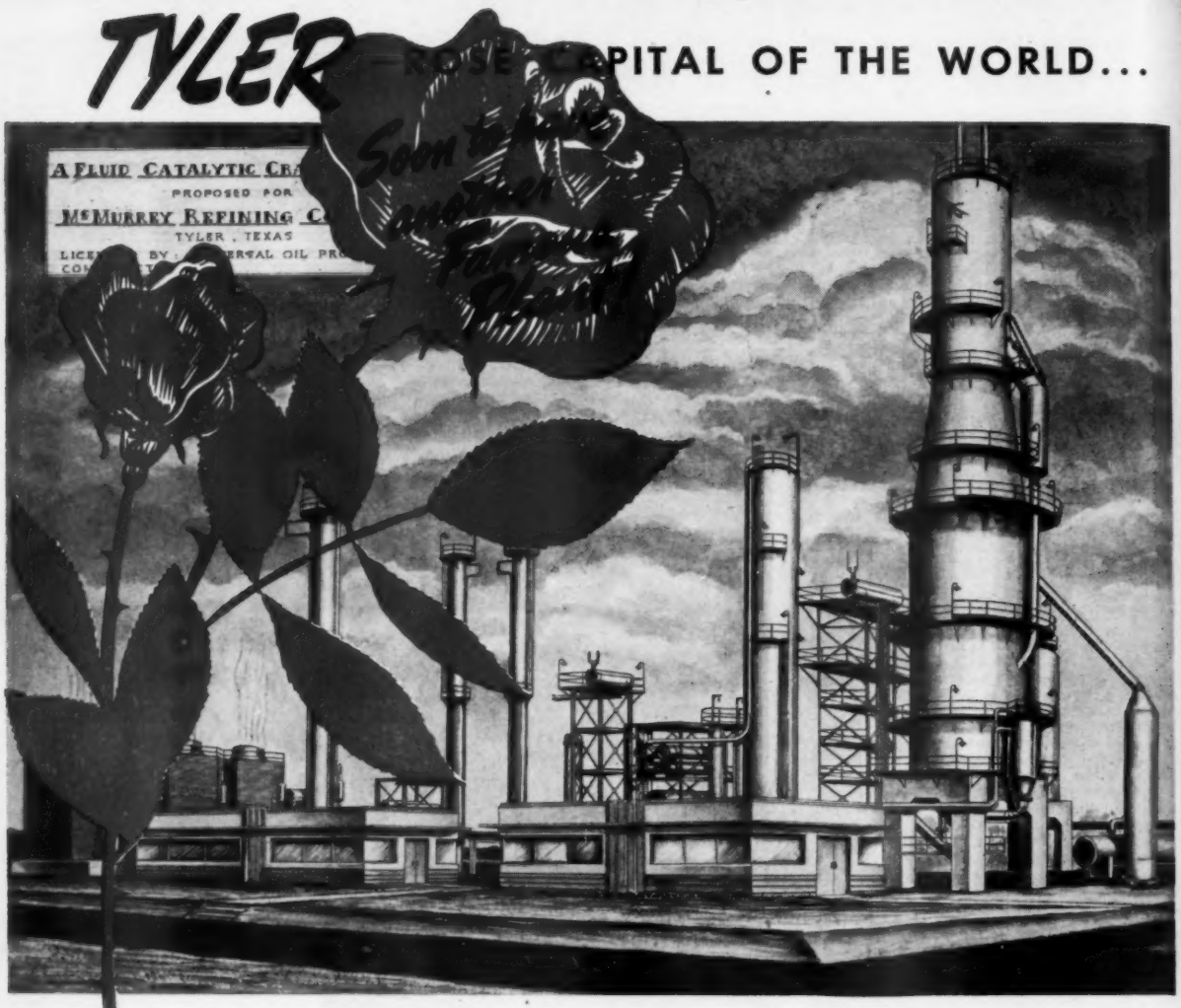

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19-14s-17e, TD 13,786 ft., 335 bbl. oil. Miocene, 13,396-13,418 ft.

WEEKS ISLAND—Iberia, April; Shell Oil Co. 7 Smith-State unit 1, 13-14s-16e, TD 13,536 ft., 357 bbl. oil, Miocene, 13,466-81 ft.

WEEKS ISLAND—Iberia, May; Shell Oil Co. A-6 Weeks Island State, 13-14s-6e, TD 12,841 ft., 390 bbl. oil, Miocene, 12,755-70 ft.

WEEKS ISLAND—Iberia, July; Shell Oil Co. D-1 Smith-State unit, 20-14s-7e, TD 14,616 ft., dry.

WEEKS ISLAND—Iberia, August; Shell Oil Co. 2 Weeks-Gall State unit 2, 12-14s-6e, TD 15,361 ft., 479 bbl. oil, 15,138-48 ft.

WEEKS ISLAND—Iberia, August; Shell Oil Co. B-8 Smith-State unit, 18-14s-7e, TD 13,450 ft., 491 bbl. oil, Miocene, 13,345-60 ft.

WEEKS ISLAND—Iberia, October; Shell Oil Co. 8 Smith-State unit, 13-14s-6e, TD 13,700 ft., 512 bbl. oil, Miocene 13,620-35 ft.

WEEKS ISLAND—Iberia, November; Shell Oil Co. 3 Smith-State unit C, 18-14s-7e, TD 13,873 ft., 301 bbl. oil.

WILDCAT—Lafourche, May; Atlantic Refining Co. 1 Ida Rogers, 36-17s-18e, TD 12,600 ft., dry.

WILDCAT—Lafourche, December; California Co. 1 Calco-Danciger, 56-17s-21e, TD 13,500 ft., dry.

WILDCAT—Orleans, April; Stanolind Oil & Gas Co. 2 E. B. Norman, 18-13s-24e, TD 13,505 ft., dry.

WILDCAT—St. Bernard, October; Richardson & Bass 1-G Albert Ruiz, 136-14s-14e, TD 13,003 ft., dry.

WILDCAT—St. Mary, August; Superior Oil Co. 1 Walter Kamper et al., 29-15s-9e, TD 12,816 ft., dry.

WILDCAT—Terrebonne, April; Humble Oil & Refining Co. A-1 State Lease 929, South Pelto area, Block 16, offshore, TD 13,211 ft., dry.

WILDCAT—Terrebonne, April; Placid Oil Co. 1 Interstate Wholesale Grocers, Inc., 43-20s-18e, TD 14,430 ft., dry.

WILDCAT—Terrebonne, May; Magnolia Petroleum Co. 1-A State Lease 775, Ship Shoal Block 108, offshore, TD 14,050 ft., dry.

WILDCAT—Terrebonne, July; Humble Oil & Refining Co. A-2 State Lease 1428, South Timbalier area, Block 52, TD 13,519 ft., dry.

WILDCAT—Terrebonne, October; The Texas Co. 1-B Continental Land & Fur Co., 34-17s-12e, TD 12,505 ft., dry.

WILDCAT—Vermilion, February; Sohio Petroleum Co. 1 State Lease 915, Vermilion Bay, TD 12,810 ft., dry.

OKLAHOMA

DEEP WELLS

CHITWOOD—Grady, June; Magnolia Petroleum Co. 1 J. R. Taylor, SW NW SE 3-4n-6w, TD 12,260 ft., 400 bbl. oil, Boatwright, 12,144-12,200 ft.

WILDCAT—Ellis, November; Sunray Oil Corp. et al., 1 Ralph Hanan, C SE NW 1-19n-24w, TD 15,047 ft., dry.

WILDCAT—McClain, October; Cities Service Oil Co. et al., 1 Jones "C," C NW NE 32-5n-4w, TD 12,510 ft., 218 bbl. oil, Chimney Hill, 10,250-68 ft.

WILDCAT—Washita, March; Stanolind Oil & Gas Co. 1 School Land 25, SE SW SW 36-9n-17w, TD 13,505 ft., dry.

MISSISSIPPI

DEEP WELL

WILDCAT—Amite, December; Humble Oil & Refining Co. 1 W. A. Stockard, et al, 33-1n-6e, dry, TD 12,500 ft.

WYOMING

DEEP WELLS

CHURCH BUTTES—Sweetwater, January; Mountain Fuel Supply Co. 5 unit, C SE SE 4-16n-112w, TD 13,033 ft., dry.

CHURCH BUTTES—Sweetwater, February; Mountain Fuel Supply Co. 8 unit, SE NW NW 28-16n-112w, TD 13,097 ft., 14,000,000 cu. ft. gas, Dakota, 12,884-12,924 ft., 12,904-25 ft., 12,825-61 ft., 12,800-20 ft., and 12,738-64 ft.

CHURCH BUTTES—Uintah, February; Mountain Fuel Supply Co. 7 unit, C SW NW 17-16n-112w, TD 14,646 ft., 10,500,000 cu. ft. gas, Dakota, 12,852-58 ft., 12,862-69 ft., 12,882-48 ft.

CHURCH BUTTES—Sweetwater, September; Mountain Fuel Supply Co. 10 unit, NE SW NE 5-16n-112w, TD 12,786 ft., 21,500,000 cu. ft. gas, Dakota, 12,525 ft.

CHURCH BUTTES—Sweetwater, September; Mountain Fuel Supply Co. 9 unit, SE NW NE 20-16n-112w, TD 13,062 ft., 45,000,000 cu. ft. gas, Dakota, 12,805 ft.

WILDCAT—Natrona, October; Pure Oil Co. 1 unit, SE NE NW 35-39n-89w, TD 15,172 ft., dry.

NORTH DAKOTA

DEEP WELL

WILDCAT—Mercer, November; F. F. Kelly and Plymouth Oil Co. 1 Fritz Leutz, C NW NE 28-142n-89w, TD 12,526 ft., dry.

ALABAMA

DEEP WELL

WILDCAT—Clarke, November; Danciger Oil & Refining Co. and The California Co. 1 John F. York, 1-7n-1w, dry, TD 13,496 ft.

CALIFORNIA

DEEP WELLS

DEL VALLE—Los Angeles, May; R. E. Havenstrite 16 Lincoln, 16-4n-17w, TD 13,038 ft., 216 bbl. oil, 10,175-13,035 ft.

PADRE CANYON—Ventura, January; Continental Oil Co. A-15 Grubb, 16-3n-24w, TD 12,735 ft., 772 bbl. oil, 8,260-8,430 ft., redrilled to 8,435 ft.

SANTA FE SPRINGS—Orange, January; Union Oil Co. 107 Bell, 5-3s-11n, TD 13,541 ft., 50 bbl. oil, redrilled to 7,900 ft.

SAN MIGUELITO—Ventura, October; Continental Oil Co. 301 Grubb, 25-3n-24w, TD 16,727 ft., 832 bbl. oil, 8,472-8,938 ft.

VENTURA AVENUE—Ventura, January; Lloyd Corp., Ltd. 34 L. C., 24-3n-23w, TD 14,232 ft., 796 bbl. oil, D-2, 13,875-14,225 ft.

VENTURA AVENUE—Ventura, January; Lloyd Corp., Ltd., 31 L. C., 24-3n-23w, TD 14,125 ft., 618 bbl. oil, D-7 zone, 13,100-14,125 ft.

VENTURA AVENUE—Ventura, March; Tide Water Associated Oil Co. 36 Hartman, 22-3n-23w, TD 12,750 ft., 834 bbl. oil, D-7 zone.

VENTURA AVENUE—Ventura, April; Lloyd Corp., Ltd, 33 L. C., 24-3n-23w, TD 13,280 ft., 342 bbl. oil, 12,550-13,265 ft.

VENTURA AVENUE—Ventura, April; Lloyd Corp., Ltd.-Shell Oil Co. A-3 Shell-Lloyd, 24-3n-23w, TD 13,563 ft., 838 bbl. oil, 12,681-13,464 ft. and 13,497-13,530 ft.

VENTURA AVENUE—Ventura, May; Tide Water Associated Oil Co. 29 McGonigle, 23-3n-23w, TD 13,475 ft., 378 bbl. oil, 12,598-13,475 ft.

VENTURA AVENUE—Ventura, June; Tide Water Associated Oil Co. 88 Ventura Land & Water Co., 24-3n-23w, TD 12,786 ft., 47 bbl. oil, 11,800-12,780 ft.

VENTURA AVENUE—Ventura, August; Lloyd Corp., Ltd., 35 L.C., 24-3n-23w, TD 13,968 ft., 698 bbl. oil, 12,854-13,968 ft.

VENTURA AVENUE—Ventura, October; Tide Water Associated Oil Co. 81 V.L.&W., 24-3n-23w, TD 12,575 ft., 267 bbl. oil, 11,746-12,568 ft.

VENTURA AVENUE—Ventura, November; Tide Water Associated Oil Co. 80 Ventura Land & Water Co., 24-3n-23w, TD 12,772 ft., 300 bbl. oil, 12,767 ft.

VENTURA AVENUE—Ventura, December; Lloyd Corp., Ltd., 29 L.C., 24-3n-23w, TD 13,400 ft., 464 bbl. oil, 13,385 ft.

VENTURA AVENUE—Ventura, December; Shell Oil Co. 315 Taylor, 28-3n-23w, TD 12,787 ft., 452 bbl. oil, 10,035-11,168 ft.

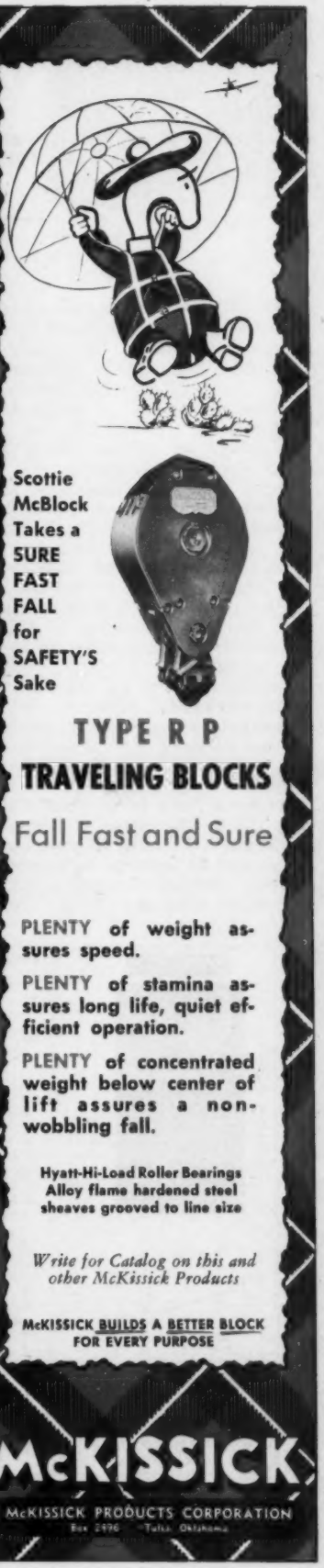
WILDCAT—Fresno, December; General Petroleum Corp. 44-14 Boston Land Co., 14-20s-18e, TD 14,724 ft., dry.

WILDCAT—Kern, April; Standard Oil Co. of California 45 Van Sicklin, 36-27s-21e, TD 14,597 ft., dry.

WILDCAT—Ventura, June; Los Nietos Co. 34-14A Fraser, 14-3n-23w, TD 14,596 ft., dry.

WILDCAT—Ventura, June; Samuel Bennett, 1 Bennett Foster, 28-3n-23w, TD 12,662 ft., dry.

WILDCAT—Ventura, July; Lloyd Corp., Ltd., 1 Sexton, 10-3n-22w, TD 13,450 ft., 500 bbl. oil, D-7 (Pliocene), 12,602-13,448 ft., TD 13,450 ft.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REVIEW and FORECAST

23,600 Wells Scheduled for Artificial Lift During 1951

by Kenneth B. Barnes

THE JOURNAL'S estimates by states, for wells scheduled for production by artificial lift during the year 1951, total 23,646 installations.

The estimate for 1951 indicates a substantial upsurge in wells to be produced by artificial lift, over last year when the Journal survey indicated a total of 19,063.

Texas will be the leader in artificial installations during 1951 with an estimated total of 9,740 wells scheduled. Texas similarly has led in this respect for many years, due to the very large amount of drilling and number of wells completed yearly. In 1951, the Journal's survey of wells to be drilled in Texas amounts to the total of 16,290.

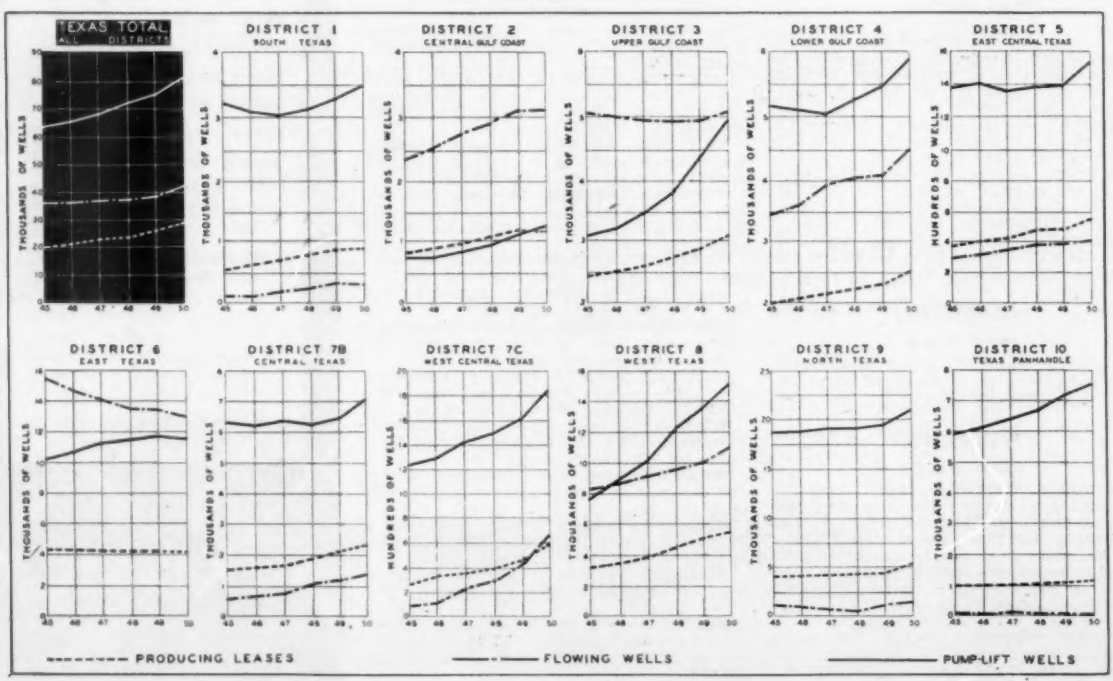
Practically all of the United States producing states, however, will be proportionately active as to artificial-lift and pumping-well schedules. No. 2 candidate as shown by the accompanying list by states will be Oklahoma with 2,885 wells, then Kansas with 2,135, thereafter followed by California, Louisiana, Illinois, etc.

The current upsurge in secondary-recovery methods for increasing oil-production rates and ultimate recovery is noticeable in the list, as to states where such production methods are increasing. Leading areas in this respect are northeastern Oklahoma, eastern Kansas, Illinois, Indiana, Kentucky, Ohio, and of course Pennsylvania and New York. Practically all of the 842 estimated pumping installations for Pennsylvania and the 375 for New York will be on oil wells produced by water flood.

Returning to Texas, the accompanying chart displays the past 6-year trend as to number of producing leases, number of flowing wells, and number of pump-lift wells for the state as a whole and by individual Railroad Commission districts. Largest number of pump-lift wells is in District 9 (North Texas) where the total as of January 1, 1951, is approximately 20,950; then follows District 8 (West Texas) with 15,150, District 6 (East Texas) with 11,650, and District 10 (Texas Panhandle) with 7,530, District 7B (Central Texas) with 7,020, District 4 (Lower Gulf Coast) 5,850, and District 3 (Upper Gulf Coast) 4,880. Total number of individual producing leases in Texas is 27,870, and flowing wells amount to 42,120.

ARTIFICIAL LIFT SURVEY, 1951

	Estimates for 1951	
	To be drilled	Artificial lift
Arkansas	450	310
California	2,220	1,500
Colorado	155	73
Illinois	2,725	1,362
Indiana	1,490	626
Kansas	4,270	2,135
Kentucky	1,020	408
Louisiana	2,620	1,415
Michigan	825	353
Mississippi	305	117
Montana	285	149
New Mexico	760	445
New York	720	375
Ohio	1,120	392
Oklahoma	5,060	2,885
Pennsylvania	1,755	842
Texas	16,290	9,740
West Virginia	730	132
Wyoming	730	314
Others	313	73
Total	43,843	23,646



REVIEW and FORECAST

Exploratory and Development Drilling —Where It Occurred and the Results

SOUTHWEST TEXAS
(District 1)

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	30	11	2	17	86,075
February	29	8	1	20	80,968
March	45	15	2	28	153,582
April	33	16	0	17	102,800
May	35	19	2	14	91,781
June	53	28	0	25	115,234
July	44	18	0	26	112,325
August	42	27	0	15	141,792
September	58	27	0	31	164,683
October	44	23	0	21	141,871
November	52	20	0	32	143,920
December	44	19	0	25	139,291
Total	509	*231	7	†271	1,474,372

*Incl. 5 distillate wells. †Incl. 2 service wells.

SOUTHWEST TEXAS
(District 1)

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	11	1	0	10	34,740
February	17	0	1	16	40,215
March	24	1	0	23	71,154
April	16	2	0	14	50,461
May	14	2	1	11	31,272
June	22	3	0	19	47,088
July	22	0	0	22	62,884
August	14	1	0	13	39,059
September	27	4	0	23	71,743
October	18	2	0	16	57,188
November	25	3	0	22	69,700
December	18	2	0	16	69,515
Total	228	21	2	205	645,019

SOUTHWEST TEXAS
(District 1)

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	19	10	2	7	51,335
February	12	8	0	4	40,753
March	21	14	2	5	82,428
April	17	14	0	3	52,339
May	21	17	1	3	60,509
June	31	25	0	6	68,196
July	22	18	0	4	49,411
August	28	26	0	2	102,733
September	31	23	0	8	92,940
October	26	21	0	5	84,693
November	27	17	0	10	74,220
December	26	17	0	9	69,776
Total	281	210	5	66	829,353

SOUTHWEST TEXAS
(District 1)

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Atascosa	19	2	0	17	73,560
Bandera	2	0	0	2	1,300
Bastrop	22	1	0	21	52,869
Bell	4	0	0	4	5,636
Bexar	15	3	0	12	23,395
Burnett	1	0	0	1	1,950
Caldwell	20	0	0	20	44,518
Dimmit	2	1	1	0	6,325
Edwards	1	0	0	1	6,168
Frio	15	0	0	15	79,436
Gonzales	8	1	0	7	31,099
Guadalupe	21	2	0	19	40,535
Kimble	2	0	0	2	4,460
Kendall	4	0	0	4	6,592
Kinney	1	0	0	1	3,000
LaSalle	4	0	0	4	25,061
McMullen	21	6	0	15	95,433
Maverick	1	0	0	1	1,202
Medina	6	1	0	5	4,684
Milam	10	1	0	9	13,099
Travis	14	2	0	12	17,116
Uvalde	4	1	0	3	8,361
Williamson	12	0	0	12	24,014
Wilson	13	0	1	12	47,073
Zavala	6	0	0	6	28,133
Total	228	21	2	205	645,019

SOUTHWEST TEXAS
(District 1)

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Big Foot	57	53	0	4	191,916
Buchanan	4	3	0	1	8,991
Charlotte	32	30	0	2	166,344
Cooksey	4	3	0	1	6,170
Darst Creek	21	19	0	2	54,236
Del Monte	3	0	3	0	11,505
East Floresville	12	11	0	1	33,151
Gas Ridge	15	15	0	0	6,932
Haby	4	0	0	4	3,752
Joliet	3	1	1	1	6,446
Jolly	6	6	0	0	8,132
Jourdanton	9	7	0	2	58,757
LaParita	7	3	0	4	11,997
Luling	16	15	0	1	35,471
Luling-Branyon	7	3	0	4	16,027
Marsha	8	1	0	7	17,079
Minerva-Rockdale	3	1	0	2	2,192
Pearsall	9	8	0	1	48,272
Rocky Creek	4	1	0	3	8,613
Salt Flats	3	3	0	0	8,058
Thrall	5	3	0	2	4,241
Turney	4	4	0	0	2,436
Weigang	5	2	0	3	16,360
Zoboroski	4	0	0	4	10,671
Miscellaneous	36	18	1	17	91,604
Total	281	210	5	66	829,353

TEXAS GULF COAST
(District 2)

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	39	26	4	9	237,392
February	42	25	3	14	246,900
March	56	30	7	19	340,010
April	45	23	5	17	279,328
May	46	23	10	13	276,841
June	86	53	8	25	507,844
July	64	35	8	21	402,174
August	55	31	2	22	310,139
September	61	32	12	17	345,758
October	69	32	10	27	407,756
November	80	41	6	33	472,304
December	51	25	8	18	286,679
Total	694	*376	83	235	4,113,125

*Incl. 16 distillate wells.

TEXAS GULF COAST
(District 2)

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	12	3	3	6	73,933
February	12	1	1	10	72,869
March	16	3	4	9	84,496
April	19	4	2	13	124,825
May	14	3	3	8	89,443
June	20	3	2	15	135,294
July	18	3	1	14	123,765
August	21	3	0	18	121,125
September	20	3	6	11	116,132
October	23	5	4	14	149,295
November	32	3	3	26	202,091
December	18	4	0	14	94,662
Total	225	38	29	158	1,387,930

TEXAS GULF COAST
(District 2)

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	27	23	1	3	163,459
February	30	24	2	4	174,031
March	40	27	3	10	255,514
April	26	19	3	4	154,503
May	32	20	7	5	187,398
June	68	50	6	10	372,550
July	46	32	7	7	278,409
August	34	28	2	4	189,014
September	41	29	6	6	229,626
October	46	27	6	13	258,461
November	48	38	3	7	270,213
December	33	21	8	4	192,017
Total	469	338	54	77	2,725,195

TEXAS GULF COAST
(District 2)

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Bee	38	3	6	29	186,878
Calhoun	17	1	2	14	139,156
DeWitt	12	4	1	7	102,570
Goliad	27	8	5	14	138,208
Jackson	20	4	5	11	130,657
Karnes	14	2	0	12	89,006
Lavaca	11	3	0	8	89,484
Live Oak	33	2	5	26	186,014
Refugio	17	2	1	14	114,534
Victoria	36	9	4	23	211,423
Total	225	38	29	158	1,387,930

TEXAS GULF COAST
(District 2)

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Albrecht	3	0	1	2	15,574
Ben Shelton	6	6	0	0	44,361
Berclair	33	23	0	10	106,783
Blanconia	4	2	2	0	19,721
Bloomington	8	7	1	0	38,379
Bonnie View	4	4	0	0	18,321
Burnell-Wilcox	3	3	0	0	20,649
Cabeza Creek	12	10	0	2	85,330
Cottonwood Creek	3	0	1	2	24,434
East Long Mott	5	4	0	1	37,042
East McFaddin	13	13	0	0	80,023
East Placedo	9	6	2	1	58,044
East Sheriff	7	1	1	5	65,017
Falls City	7	6	0	1	41,523
Heyser	4	4	0	0	25,954
Hope	3	1	2	0	23,605
Lolita	5	5	0	0	40,163
Mayo	8	8	0	0	46,783
Melbourn	6	3	2	1	56,489
Placedo	48	46	2	0	239,262
Powder Horn	8	4	2	2	48,159
Pridham Lake	4	4	0	0	19,613
Provident City	4	2	2	0	33,006
Refugio-Fox	11	5	2	4	65,038
Refugio-Heard	3	3	0	0	19,836
Russek	6	4	0	2	31,982
Sliva	3	0	2	1	13,415
South Blanconia	4	2	0	2	21,554
Swan Lake	17	16	0	1	125,584
Tom O'Connor	23	16	3	4	123,148
Tynan	6	5	0	1	26,756
Victoria-Deep	22	14	3	5	115,026
West Ranch	60	60	0	0	361,394
West Weesatche	3	2	0	1	25,189
Youngeen	13	8	4	1	51,427
Yoward	4	4	0	0	30,098
Miscellaneous	87	37	22	28	526,513
Total	469	338	54	77	2,725,195

TEXAS GULF COAST
(District 3)

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	122	84	7	31	734,090
February	120	81	8	31	644,373
March	137	82	13	42	807,536
April	119	79	5	35	698,137
May	133	86	0	47	702,340

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You will never have to "mill up" a Baker Retainer Production Packer.

NO "SET-DOWN" WEIGHT REQUIRED
When desired the tubing can be suspended in tension to avoid "corkscrewing."

RESISTS CORROSION
Cast iron construction of the packer is more corrosion resistant than steel casing.

HOLDS BOTH WAYS
Two full sets of opposing slips prevent downward or upward movement of packer.

CLEAR PASSAGE THRU PACKER
for "down-hole" work. Flapper type back-pressure valve opens readily and closes positively.

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including two-zone, single-zone, testing, acidizing, repressuring, gas lift, etc., are possible with . . .

PACKER IS FREE FROM TUBING
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EFFICIENT ACCESSORY EQUIPMENT
as described and illustrated in the BAKER CATALOG and the Composite Catalog.

Product No. 415-D

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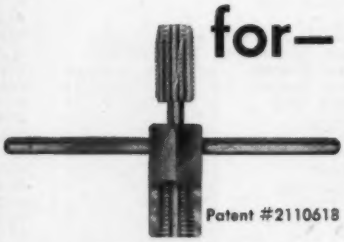
★ RODS
★ SLUSH PUMPS
★ BLOWOUT PREVENTER STUDS



Patent #2110618

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This box and pin tool is good for rechasing damaged sucker rod threads to original thread pitch and contact dimensions.

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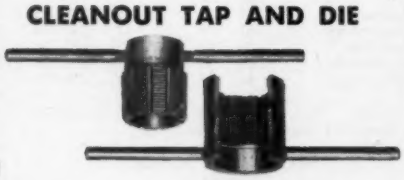

This tool is built for field use—to clean smashed threads, remove dirt and other contamination on tubing threads. Tubing is scarce again and deserves utmost care and attention.

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Month—	Comp.	Oil	Gas	Dry	Footage
June	158	98	8	52	974,133
July	128	88	5	35	767,421
August	159	100	3	56	938,664
September	131	71	5	55	822,737
October	125	70	4	51	730,041
November	149	93	9	47	958,456
December	133	82	3	48	814,722
Total	1,614	*1,014	70	†530	9,592,650

*Incl. 48 distillate wells. †Incl. 5 service wells.

TEXAS GULF COAST

(District 3)

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	21	4	0	17	153,620
February	17	4	0	13	121,750
March	27	5	3	19	199,943
April	22	9	0	13	158,050
May	22	5	0	17	155,296
June	32	4	3	25	243,709
July	24	5	2	17	172,350
August	38	13	0	25	263,175
September	33	5	0	28	237,074
October	31	6	1	24	194,707
November	39	10	2	27	285,579
December	32	5	0	27	232,082
Total	338	75	11	252	2,417,335

TEXAS GULF COAST

(District 3)

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	101	80	7	14	580,470
February	103	77	8	18	522,623
March	110	77	10	23	607,593
April	97	70	5	22	540,087
May	111	81	0	30	547,044
June	126	94	5	27	730,424
July	104	83	3	18	595,071
August	121	87	3	31	675,489
September	98	66	5	27	585,663
October	94	64	3	27	535,334
November	110	83	7	20	672,877
December	101	77	3	21	582,640
Total	1,276	939	59	278	7,175,315

TEXAS GULF COAST

(District 3)

Wildcat Completions by Counties

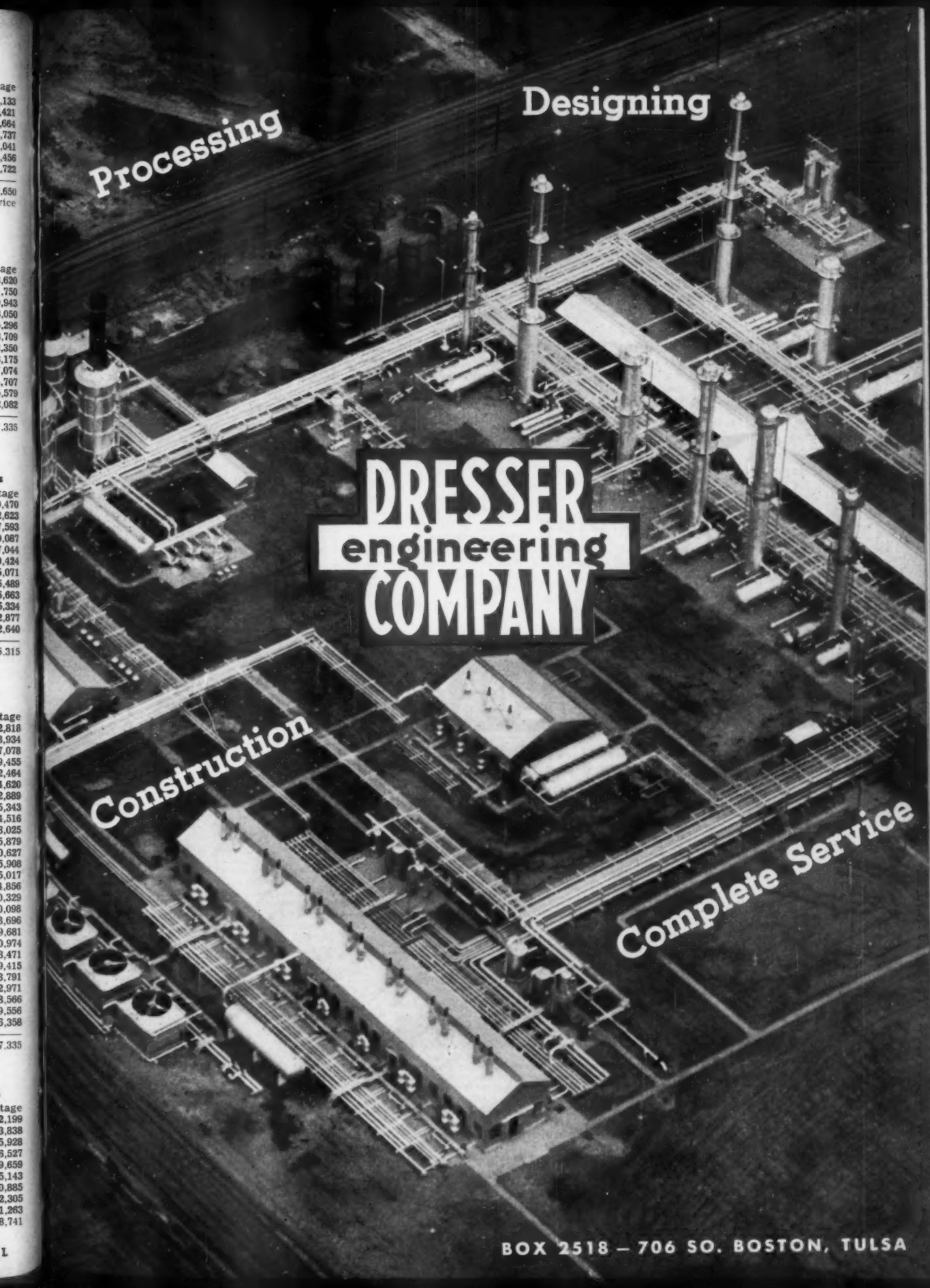
County—	Comp.	Oil	Gas	Dry	Footage
Austin	11	6	0	5	102,818
Brazoria	30	8	2	20	248,934
Brazos	3	0	1	2	17,078
Burleson	3	0	0	3	19,455
Chambers	14	1	1	12	132,464
Colorado	6	3	0	3	54,620
Fayette	7	3	0	4	12,889
Fort Bend	20	4	0	16	115,343
Galveston	11	2	0	9	94,516
Grimes	1	0	0	1	3,025
Hardin	15	6	0	9	115,879
Harris	25	2	1	22	180,627
Jasper	2	0	0	2	15,908
Jefferson	17	4	0	13	145,017
Lee	4	0	0	4	14,856
Liberty	27	10	2	15	190,329
Matagorda	20	3	1	16	170,098
Montgomery	17	1	0	16	108,696
Newton	9	4	0	5	79,681
Orange	18	5	1	12	150,974
Polk	8	1	0	7	33,471
San Jacinto	4	1	0	3	19,415
Tyler	8	2	0	6	53,791
Walker	6	0	0	6	22,971
Waller	4	1	0	3	28,566
Washington	3	2	0	1	19,556
Wharton	45	6	2	37	266,358
Total	338	75	11	252	2,417,335

TEXAS GULF COAST

(District 3)

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Alvin	4	0	2	2	42,199
Arriola	3	2	0	1	13,838
Barbers Hill	21	14	0	7	95,928
Batson	29	24	0	5	76,527
Big Creek	9	7	0	2	39,659
Big Hill	3	1	0	2	15,143
Blue Ridge	15	15	0	0	60,885
Boling	42	17	0	25	92,305
Brenham Dome	5	5	0	0	1,263
Chenango	3	3	0	0	28,741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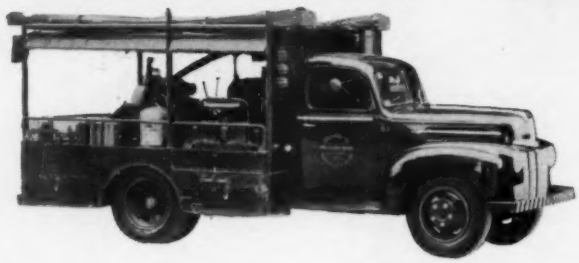
NOTHING LEFT OUT FOR FAST EFFICIENT PIPE LINE CLEANING!



A COMPLETE PICTURE

The complete picture of a successful water line, oil or gas line cleaning job means proper tools, yes, but it also means hundreds of miles of pipe cleaned in the years gone by — under all conditions. Tools, training and experience are blended in Flexible Pipe Cleaning Company's work.

Flexible Pipe Cleaning Co., of California is fully equipped with all the latest tools and power machinery needed to do top-notch pipe line cleaning quickly, economically. This specialized equipment includes road trucks, trailers, light plants, pumps, from 2" to 6", air compressors, power driven pipe cutters, power bucket machines, power drives, winches, communications equipment, and the most complete stock of cleaning tools available today.

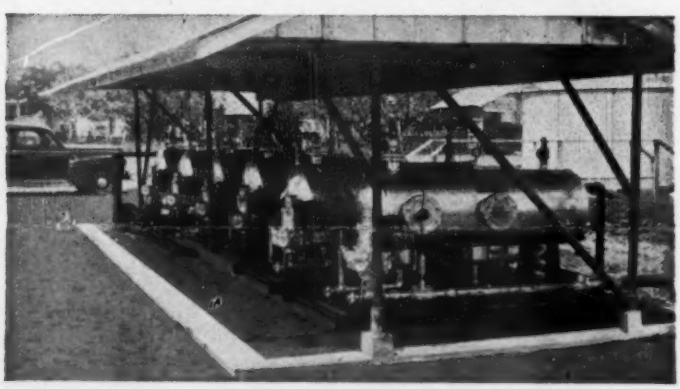
Write or Wire Today for an estimate on cleaning your water, gas or oil line, or stacked pipe.

FLEXIBLE PIPE CLEANING CO.,
OF CALIFORNIA

Shop and Warehouse: 9324 Norwalk Blvd., Los Nietos, Calif. Phone OX: 4-4108 or call TExas 0-2159.
9059 Venice Blvd., Los Angeles 34, Calif.

ROLO WELLCHECKERS

PERMANENT AND PORTABLE OIL AND GAS SEPARATORS



This battery of six skid-mounted 4-1H-2406 Rolo Wellcheckers makes it possible to produce six one-well leases into a single tank battery. Installations of this type, of which Rolo Mfg. Co. has made many, are approved by regulatory bodies. Let us work with you on your problem.

Rolo Wellcheckers are made in all sizes to fit any operation. See Composite Catalog or write for illustrated Bulletin.

Oil Well Metering Specialists

ROLO MANUFACTURING COMPANY

2510 SOUTH BLVD., HOUSTON 6, TEXAS
BRANCHES: Corpus Christi, Midland, Kilgore, Tulsa, New Orleans, Los Angeles, Casper, Calgary (Alta.)
EXPORT OFFICE: R. S. Stokvis & Sons, Inc., 17 Battery Place, New York, N. Y.

Field—	Comp.	Oil	Gas	Dry	Footage
Chocolate Bayou	14	14	0	0	143,888
Clay Creek	19	17	1	1	57,382
Clements Dome	3	0	1	2	6,520
Clinton	3	2	0	1	20,310
Coline	10	8	0	2	46,362
Collegeport	4	0	4	0	16,335
Columbus	3	0	1	2	30,012
Copeland Creek	8	6	1	1	42,557
Damon Mound	17	9	0	8	55,767
Danbury	3	1	0	2	16,435
Dyersdale	9	8	0	1	36,193
East Hollister	4	3	0	1	30,758
East Mayes	3	2	0	1	28,208
East Village Mills	76	74	0	2	532,313
Esperson	5	5	0	0	47,526
Fannett	18	13	0	5	133,892
Fisher's Reef	5	4	0	1	45,553
Gillock	18	16	0	2	167,131
Gist	5	4	1	0	36,697
Goose Creek	115	98	0	17	482,930
Hankamer	22	18	1	3	122,711
Hardin	3	3	0	0	25,666
Hartburg	5	3	0	2	39,575
High Island	19	15	0	4	132,399
Hitchcock	3	3	0	0	20,784
Hockley	4	4	0	0	23,526
Housh	4	4	0	0	33,727
Hull	70	58	0	12	465,705
Humble	40	21	0	19	113,625
Hutchins-Kubela	6	2	2	2	32,931
Kuhlman	5	4	0	1	31,347
Lane City Townsite	4	4	0	0	21,921
Lemonville	7	4	0	3	55,588
Lick Branch	3	2	1	0	25,893
Liverpool	5	3	0	2	52,353
Manvel	3	1	0	2	16,427
Markham	16	10	0	6	38,117
Midfields	10	8	0	2	92,923
Millican Dome	3	0	1	2	11,664
Moore's Orchard	6	6	0	0	41,607
Morgans Creek	4	2	0	2	14,793
Nash	3	3	0	0	12,022
Needville	4	1	2	1	24,187
New Ulm	11	8	3	0	112,050
Nona Mills	30	26	0	4	250,815
North Bay City	4	3	0	1	35,541
North Big Hill	3	0	1	2	26,933
North Markham	3	2	1	0	26,903
N. Port Neches	11	4	5	2	88,551
N. Richmond	6	4	0	2	46,068
Old Ocean	19	16	0	3	208,921
Orange (Hackberry)	8	5	0	3	41,937
Pickett Ridge	13	12	1	0	61,661
Pierce Junction	20	13	0	7	109,704
Port Neches	5	2	2	1	36,809
Prasifka	6	4	2	0	33,515
Raccoon Bend	10	1	1	8	54,056
Ramsey	3	2	1	0	27,733
Rose City	4	4	0	0	33,041
Saratoga	28	21	0	7	48,055
Silsbee	8	6	1	1	60,472
Sour Lake	101	86	0	15	295,254
South Dayton	8	7	0	1	57,334
South Gillock	17	15	0	2	160,852
South Liberty	62	52	1	9	348,328
South Mayes	6	5	0	1	61,154
S. Thompson	5	3	0	2	23,746
Spanish Camp	5	0	2	3	18,446
Spindletop	12	12	0	0	26,211
Stowell	4	2	0	2	27,786
Stratton Ridge	5	0	0	5	34,280
Tidehaven	7	7	0	0	65,394
W. Beaumont	7	3	4	0	53,005
W. Columbia	7	4	0	3	37,394
W. Orange	10	8	0	2	50,089
W. Wharton	5	2	1	2	27,419
Miscellaneous	98	49	15	34	693,130
Total	1,276	939	59	278	7,175,315

SOUTHWEST TEXAS
(District 4)
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	127	69	15	43	595,037
February	108	56	6	46	498,847
March	144	90	9	45	695,603
April	115	69	4	42	514,431
May	143	79	14	50	728,586
June	171	87	15	69	865,062
July	129	72	14	43	607,910
August	150	96	9	45	732,868
September	135	84	10	41	694,106
October	122	69	10	43	578,171

COMPARE

YOUR PRESENT PIPE LINE WRAPPING MATERIAL WITH

GAMA ASBESTOS PIPE LINE FELT

How does your present wrapping material answer these questions?

QUESTION:	YOUR PRESENT MATERIAL:	GAMA ASBESTOS PIPE LINE FELT:
Of what material is it made?		High quality Canadian chrysotile asbestos fibers.
How long has this type material been in use?		For almost 30 years.
Are data covering long time testing of this material available?		Yes, by the American Gas Assn., the National Bureau of Standards, and the A.P.I. tests in 1930.
Is it a positive shield against soil stress?		Yes. It is at the outside, partially imbedded, and at the point where needed.
Does it reinforce the enamel?		Yes. Its strong fibers lend needed reinforcement.
Does it tighten coating to the pipe?		Yes. It is a strong, thick sheath of asbestos in solid roll lengths.
Is it moisture resistant?		Yes. Tar saturant is moisture resistant. Asbestos fibers are solid, not tubular or hollow.
Does it have high fiber count?		Yes. A natural characteristic.
Is it uniform?		Yes.
Does it have high impact resistance?		Yes.
Does it apply easily and evenly?		Yes. Accurate mat make-up gives precision laps.
Does it prevent backfill damage?		Yes.
Does it prevent lowering-in damage?		Yes.
Does it give an even thickness of enamel on top, bottom and side of pipe?		Yes.
Is it a protection for the coating beneath it?		Yes. It stops damage at the outside—before it starts.
Does it prevent damage from abrasive movement coating receives in shipping or handling?		Yes.
Does it stick in the rolls?		No.
Does it have high tensile strength?		Yes. Lengthwise—44 to 52 lbs.; Sidewise—15 to 21 lbs.
Does it relieve gas bubbles?		Yes. By compressing action.
Is it chemically resistant?		Yes. Both asbestos and tar are very inert to most corrosive forces.
Can holiday detectors be run freely over its surface?		Yes.
Can it take rough, abusive handling?		Yes.
Does it irritate workmen?		No.
Is it a foreign material in the enamel?		No.

MANUFACTURED BY:

GAMA INDUSTRIES, INC.

70 Pine Street **New York 5, N. Y.**

DISTRIBUTED BY:

MIDDLE WEST COATING & SUPPLY

207-A Daniel Bldg. **Tulsa, Okla.** **Ph. 2-5215**

Month—	Comp.	Oil	Gas	Dry	Footage
November	180	109	8	63	898,971
December	124	74	3	47	597,419
Total	1,648	*954	117	577	8,007,011

*Incl. 37 distillate wells.

SOUTHWEST TEXAS
(District 4)
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	31	7	7	17	146,379
February	37	6	4	27	185,958
March	28	9	0	19	150,085
April	35	7	1	27	169,777
May	24	2	1	21	137,966
June	55	9	6	40	297,175
July	31	4	2	25	141,164
August	26	5	2	19	162,994
September	30	7	2	21	168,435
October	28	6	2	20	149,052
November	40	10	0	30	194,961
December	35	4	0	31	181,685
Total	400	76	27	297	2,085,631

SOUTHWEST TEXAS
(District 4)
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	96	62	8	26	448,658
February	71	50	2	19	312,889
March	116	81	9	26	545,518
April	80	62	3	15	344,654
May	119	77	13	29	590,620
June	116	78	9	29	567,887
July	96	68	12	18	466,746
August	124	91	7	26	569,874
September	105	77	8	20	525,671
October	94	63	8	23	429,119
November	140	99	8	33	704,010
December	89	70	3	16	415,734
Total	1,248	878	90	280	5,921,380

SOUTHWEST TEXAS
(District 4)
Wildcat Completions by Counties

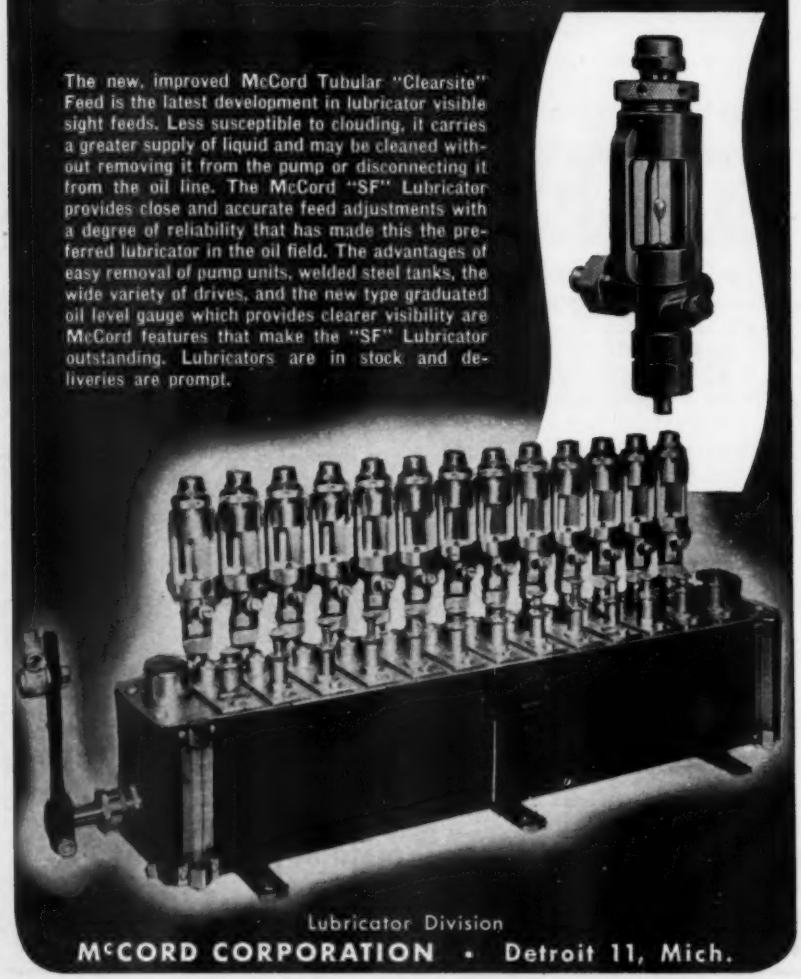
County—	Comp.	Oil	Gas	Dry	Footage
Aransas	8	5	0	3	68,296
Brooks	19	7	3	9	126,181
Cameron	6	0	0	6	58,068
Duval	87	10	2	75	300,940
Hidalgo	16	4	1	11	144,260
Jim Hogg	37	5	2	30	134,616
Jim Wells	28	4	7	17	159,248
Kenedy	7	0	1	6	72,951
Kleberg	7	4	0	3	63,367
Nueces	38	11	4	23	277,911
San Patricio	47	15	1	31	308,148
Starr	35	6	2	27	146,924
Webb	52	3	3	46	182,232
Willacy	2	1	0	1	18,591
Zapata	11	1	1	9	23,904
Total	400	76	27	297	2,085,631

SOUTHWEST TEXAS
(District 4)
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Agua Dulce	14	9	2	3	91,578
Alta Verde	8	2	1	5	22,997
Atlee	4	3	0	1	20,845
Aviator	6	0	0	6	10,647
Bailey	9	5	1	3	52,886
Billings	7	5	0	2	17,315
Borosa	5	3	0	2	22,525
Borrigas	9	7	1	1	67,863
Buena Vista	10	6	0	4	19,654
Calallen	4	2	1	1	30,946
Canelo	5	2	0	3	38,682
Casa Blanca	7	7	0	0	9,359
Charamousca	4	2	0	2	7,543
Clara Driscoll	4	0	1	3	17,171
Colmena	7	2	0	5	14,311
Copano Bay	5	3	0	2	39,031
Corpus Christi, Deep	13	8	0	5	90,928
Cox & Hamon	26	22	0	4	93,904
DCR-79	11	11	0	0	17,060
Dee Davenport	7	3	0	4	31,898
Donna	4	2	2	0	30,786
Dulup	8	1	1	6	15,905
E. Charamousca	4	4	0	0	6,310
E. Charco Redondo	5	2	0	3	7,661
East Hoffman	40	31	2	7	87,030
East Peters	4	1	1	2	12,148
East Plymouth	8	6	2	0	39,541
East Riverside	5	4	1	0	30,746
E. White Point	12	12	0	0	66,429
Ed Lasater	17	12	1	4	32,626
Edinburg	8	5	2	1	66,450
El Ebanito	7	2	2	3	49,198
Fulton Beach	36	34	0	2	264,362
Garcia	18	15	0	3	75,378
Gruy	5	4	0	1	13,500
Hagist Ranch	5	4	1	0	41,725
Hellen	6	4	0	2	18,512
Hoffman (Rowden)	58	55	0	3	132,304
Hollow Tree	8	7	0	1	31,633
Jay Simmons	10	10	0	0	65,155
Joe Moss	10	9	0	1	5,526
Kelsey, Deep	13	13	0	0	84,832
La Copita	4	3	0	1	26,293
La Gloria	23	17	2	4	163,989
La Reforma	9	5	1	3	68,488
La Sal Vieja	8	6	1	1	69,480
London Gin	62	50	0	12	293,143
Lou Ella	9	6	0	3	46,765
Lundell	8	3	0	5	19,868
McAllen	5	4	1	0	49,031
Midway-Holst	11	8	0	3	58,904
Minnie Bock	4	4	0	0	18,084
Mirando City	4	4	0	0	6,449
Moca	19	12	2	5	40,147
Mud Flats (M. E. Whitten)	8	4	3	1	77,213
Mustang Island	14	12	2	0	112,031
N. Albercas	10	4	1	5	23,159
N. Government Wells	10	7	2	1	22,847
N. Minnie Bock	5	4	0	1	32,846
N. Rincon	5	4	1	0	22,518
Orlee	4	3	0	1	6,837
Palo Blanco	12	10	0	2	56,187
Piedras Pintas	4	2	0	2	7,922
Portilla	17	17	0	0	147,996
Premont	18	14	1	3	69,394

new McCORD
TUBULAR "CLEARSITE" FEED
SF LUBRICATOR

The new, improved McCord Tubular "Clearsite" Feed is the latest development in lubricator visible sight feeds. Less susceptible to clouding, it carries a greater supply of liquid and may be cleaned without removing it from the pump or disconnecting it from the oil line. The McCord "SF" Lubricator provides close and accurate feed adjustments with a degree of reliability that has made this the preferred lubricator in the oil field. The advantages of easy removal of pump units, welded steel tanks, the wide variety of drives, and the new type graduated oil level gauge which provides clearer visibility are McCord features that make the "SF" Lubricator outstanding. Lubricators are in stock and deliveries are prompt.



Lubricator Division
McCORD CORPORATION • Detroit 11, Mich.

BUDA 2505 DIESELS

CUT FUEL COST ½ . . .

SAVE $51.00 PER DAY FOR MOUNTAIN STATES DRILLING CO!

Mountain States Drilling Co., drilling near Roosevelt, Utah. Drilling to 11,000 ft., using 4½" pipe. One 2505 on draw-works, two 2505s on the pump.

2505 Power PLUS Economy Makes Profits for Drillers

Saving $51.00 a day over previous fuel costs is important to every Driller. That's exactly what 3 Buda 8 DCS-2505 Diesels are doing on a tough deep drilling job for Mountain States Drilling Co.

The story is the same all over . . . Drillers everywhere are talking about *2505 power . . . 2505 fuel economy . . . 2505 versatility . . . 2505 stamina*, because here at last, is an engine that can be called a DRILLER'S ENGINE.

Get the full 2505 story from your Buda Oilfield Distributor. Ask him about the "Fuecomizer" Kit and Buda's 2 engine for 1 deal. Write for details and Bulletins. The Buda Company, Harvey, Illinois.

Every 2505 Owner Receives the FUECOMIZER certificate. Ask for details.

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Wherever there's Oil there's

Engines . . . Parts . . . Service

ONLY ONE MOVING PART..

A small, stainless steel valve that *floats on the condensate load*... keeps maintenance at a minimum. Continuous discharge under heavy loads, frequent under light loads, *gets equipment hotter, sooner and keeps it hot.* Over 600,000 Yarways already installed. Sold by distributors throughout the world.

YARNALL-WARING CO. 136 MERMAID AVENUE, PHILA. 18, PA.

VERSATILE!

Selecting and switching multiple thermocouple-pyrometer circuits is quickly accomplished with a Connector Panel Console.

From this One Panel, 90 thermocouples from varied locations are quickly connected to any of 80 pyrometer recording points. The Plugs and Jacks of thermocouple material provide positive contact, flexibility and arm-length control for completing any number of circuits.

These Panels are ideal for Oil Refineries, Pilot Plants and Engine Test Stand Use. They are built to meet individual needs.

Write for our complete catalog U, describing our Thermocouples, Quick Coupling Connectors, Panels, Lead Wires and Accessories.

Thermo Electric CO. INC. FAIR LAWN NEW JERSEY

Field—	Comp.	Oil	Gas	Dry	Footage
Quien Sabe	10	7	1	2	23,501
Rachal	16	12	1	3	73,352
Rancho Solo	6	2	1	3	12,337
Ricaby	7	4	0	3	10,855
Rincon	60	48	2	10	338,479
Rita	5	4	0	1	40,575
Salt Lake	10	5	2	3	77,576
San Salvador	4	0	4	0	35,210
Santos	5	0	1	4	14,752
Sarita	10	6	1	3	63,739
Saxet	6	5	1	0	36,497
Seeligson	71	69	1	1	424,300
Seven Sisters	7	5	1	1	16,903
S. El Mesquite	4	2	0	2	12,890
S. Rosalia	8	4	0	4	27,461
S. Santa Fe Ranch	5	1	2	2	41,108
S. Seventy-Six	14	12	0	2	25,784
Stratton	12	10	1	1	86,909
Taft	15	11	0	4	61,334
Tarancahuas	6	4	0	2	12,740
Tiger	4	0	2	2	12,716
Tijerina-Canales-Blucher	8	7	1	0	58,908
West Sinton	33	22	2	9	134,331
West Sinton, Shallow	14	9	3	2	43,133
Willamar	14	11	0	3	111,402
Miscellaneous	165	76	24	65	789,099
Total	1,248	878	90	280	5,921,380

EAST TEXAS
(Districts 5 and 6)
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	91	66	5	20	395,822
February	75	47	3	25	284,632
March	98	53	7	38	387,276
April	89	66	5	18	328,155
May	85	64	2	19	334,803
June	168	127	3	38	654,261
July	58	36	2	20	233,996
August	126	82	6	38	601,518
September	73	53	4	16	339,031
October	86	57	2	27	383,688
November	113	75	10	28	514,312
December	102	75	2	25	469,955
Total	1,164	*801	51	†312	4,927,449

*Incl. 48 distillate wells. †Incl. 12 service wells.

EAST TEXAS
(Districts 5 and 6)
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	18	2	1	15	92,584
February	21	1	0	20	82,257
March	31	1	0	30	125,631
April	12	2	0	10	40,423
May	14	2	0	12	54,662
June	20	3	0	17	66,332
July	16	0	0	16	68,011
August	20	2	2	16	108,022
September	15	5	0	10	69,411
October	18	2	0	16	68,849
November	24	1	0	23	101,140
December	14	1	0	13	67,430
Total	223	22	3	198	944,752

EAST TEXAS
(Districts 5 and 6)
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	73	64	4	5	303,238
February	54	46	3	5	202,375
March	67	52	7	8	261,645
April	77	64	5	8	287,732
May	71	62	2	7	280,141
June	148	124	3	21	587,929
July	42	36	2	4	165,985
August	106	80	4	22	493,496
September	58	48	4	6	269,620
October	68	55	2	11	314,839
November	89	74	10	5	413,172
December	88	74	2	12	402,525
Total	941	779	48	114	3,982,697

EAST TEXAS
(Districts 5 and 6)
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Anderson	7	2	0	5	40,795
Angelina	2	0	0	2	5,762
Bosque	6	0	0	6	30,029
Bowie	2	0	0	2	8,810
Cass	3	0	0	3	14,688
Cherokee	3	1	0	2	15,522

AVONDALE . . . for the OIL INDUSTRY

You know what the word, "Integrity" means! Now apply it to a marine industry such as AVONDALE. It acquires many meanings, among which are: the absolute honesty of skilled experience, the "know-how" of people who understand and feel an interest in your particular problem. That's why AVONDALE has been so successful in building and repairing for the Oil Industry. . . . Integrity—all around!

Drilling Rig built for Rowan Drilling Company, Inc.

"Barnacle Bill", a radar-equipped crew boat designed for oil field work.

AVONDALE MARINE WAYS, Inc.

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LINE PIPE COUPLINGS A.P.I.
⅛" to 12"—Seamless and Special Processed—Black or Galvanized

PLAIN TUBING COUPLINGS A.P.I.
1" to 3"—Seamless

EXTERNAL UPSET TUBING COUPLINGS A.P.I.
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⅛" to 3"—Seamless

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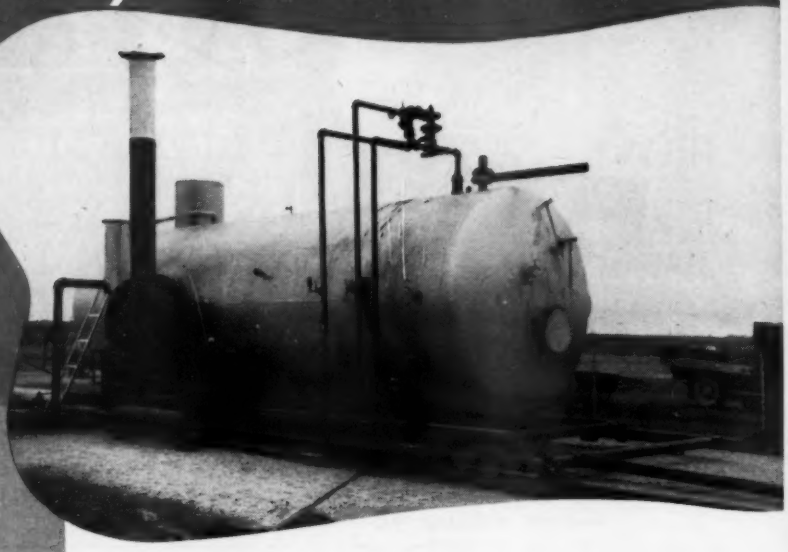
WHEELING MACHINE PRODUCTS COMPANY

ELM GROVE STATION — WHEELING, W. VA.

There's a Maloney-Crawford Treater to Handle *Every Emulsion Problem*



This Model M-825-E Is Successfully Operating On A Water Flooding Project in Oklahoma

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DEHYDRATION UNITS

Maloney-Crawford pioneered the horizontal treater to bring the industry the advantages of portability, elimination of the problem and cost of upending a treater, ease of operation and maintenance due to ground level accessibility of treater and controls.

These treaters are a complete unit, capable of treating the tightest emulsions. They have a gas capacity great enough that the need for a low pressure separator is usually eliminated. The syphon is adjustable without shutting down the treater. A heat exchanger is an integral part of the treater, as is a free water knockout compartment.

The Maloney-Crawford design provides for a long, slow wash which results in lower furnace temperatures, less shrinkage loss, and lower fuel cost.

Maloney-Crawford Specialized Treaters are the answer to handling varied emulsion problems such as loose or tight emulsions; foamy oils; pipeline bottoms; water flooding; normal lease crudes.

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TEXAS PANHANDLE REPRESENTATIVE: H. W. Wadell, Pampa, Texas

County—	Comp.	Oil	Gas	Dry	Footage
Denton	36	0	0	36	73,262
Ellis	2	0	0	2	8,610
Falls	6	2	0	4	7,084
Freestone	6	1	0	5	37,224
Grayson	13	4	0	9	76,100
Harrison	1	1	0	0	6,400
Henderson	5	0	0	5	24,018
Hill	3	0	0	3	4,207
Hopkins	7	1	0	6	45,963
Houston	7	0	0	7	46,307
Hunt	4	0	0	4	16,282
Kaufman	3	2	0	1	15,039
Lamar	2	0	0	2	5,518
Limestone	11	0	1	10	26,784
McLennan	5	0	0	5	6,554
Marion	3	0	0	3	16,250
Nacogdoches	3	1	0	2	22,951
Navarro	11	1	1	9	31,136
Panola	2	0	1	1	13,232
Red River	13	0	0	13	28,053
Robertson	3	0	0	3	8,347
Rusk	4	0	0	4	27,152
Shelby	3	1	0	2	17,045
Smith	4	1	0	3	20,962
Titus	6	0	0	6	33,194
Upshur	6	0	0	6	35,532
Van Zandt	3	0	0	3	19,671
Walker	2	0	0	2	6,973
Wood	19	4	0	15	118,227
Miscellaneous	7	0	0	7	31,069
Total	223	22	3	198	944,752

EAST TEXAS
(Districts 5 and 6)
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Alba	15	13	0	2	62,588
Angus	7	4	0	3	10,274
Bethany	3	0	1	2	24,037
Bolivar (all fields)	120	95	0	25	190,298
Bud Lee	3	1	0	2	23,335
Buffalo	14	7	6	1	82,674
Campbell	3	1	0	2	13,139
Carthage	34	8	20	6	205,495
Chapel Hill	3	3	0	0	24,473
Como	6	5	0	1	29,558
Corsicana, Shallow	20	11	0	9	23,569
Earl Lee	14	12	0	2	74,259
East Texas	343	336	0	7	1,264,184
Forrest Hill	7	5	0	2	32,932
Hawkins	6	6	0	0	29,214
Henderson	3	3	0	0	22,696
Lassater	3	1	0	2	28,758
Long Lake	5	3	1	1	26,580
Merrigale-Paul	3	3	0	0	15,080
Midway Lake	4	4	0	0	18,264
Nolan Edward	4	4	0	0	19,026
North Lansing	5	1	3	1	39,633
Opelika	9	8	1	0	80,192
Pewitt Ranch	56	56	0	0	255,809
Pickton	9	7	0	2	68,068
Pickton, SE.	14	14	0	0	111,062
Pine Mills	42	39	0	3	233,817
Powell	6	4	0	2	10,259
Quitman	8	7	0	1	34,557
Red Springs	4	4	0	0	38,564
Reed	4	3	1	0	29,642
Sherman	11	10	0	1	40,801
Sherman, East	19	19	0	0	64,548
Stewards Mill	3	1	0	2	24,147
Tennessee Colony	8	8	0	0	74,707
Trawick	5	4	1	0	39,709
West Fair	10	7	0	3	46,502
Waskom	31	26	1	4	187,803
Woodlawn	11	3	7	1	72,727
Yantis & E.	9	6	2	1	57,370
Miscellaneous	57	27	4	26	252,347
Total	941	779	48	114	3,982,697

WEST CENTRAL TEXAS
(District 7-B)
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	121	56	1	64	385,018
February	133	55	5	73	426,399
March	173	74	6	93	523,559
April	159	78	4	77	467,490
May	139	65	4	70	420,461
June	174	77	5	92	495,443
July	166	83	2	81	469,194
August	222	88	4	130	592,997
September	153	76	5	72	432,893
October	163	86	6	71	444,840
November	239	119	3	117	632,919
December	199	96	4	99	509,658
Total	2,041	953	49	*1,039	5,800,871

*Incl. 11 service wells.

WEST CENTRAL TEXAS
(District 7-B)
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	26	2	0	24	85,939
February	45	8	3	34	149,385
March	62	14	0	48	193,379
April	54	7	1	46	166,900
May	53	15	0	38	164,042
June	70	10	4	56	239,274
July	62	16	0	46	216,708
August	85	17	1	67	249,893
September	58	11	3	44	210,592
October	57	13	4	40	183,766
November	86	17	0	69	260,732
December	71	9	2	60	245,644
Total	729	139	18	572	2,366,254

WEST CENTRAL TEXAS
(District 7-B)
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	95	54	1	40	299,079
February	88	47	2	39	277,014
March	111	60	6	45	330,180
April	105	71	3	31	300,590
May	86	50	4	32	256,419
June	104	67	1	36	256,169
July	104	67	2	35	252,486
August	137	71	3	63	343,104
September	95	65	2	28	222,301
October	106	73	2	31	261,074
November	153	102	3	48	372,187
December	128	87	2	39	264,014
Total	1,312	814	31	467	3,434,617

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WEST CENTRAL TEXAS
(District 7-B)

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Brown	45	7	0	38	72,670
Callahan	43	9	0	34	101,718
Coleman	77	15	4	58	163,573
Comanche	47	4	2	41	136,862
Coryell	5	0	0	5	12,802
Erath	2	0	0	2	7,402
Eastland	30	6	3	21	86,256
Fisher	23	3	0	20	128,819
Hamilton	5	0	1	4	17,845
Haskell	34	7	0	27	160,495
Hood	3	0	0	3	15,725
Jones	133	25	0	108	422,699
Lampasas	4	0	0	4	8,624
Mills	3	0	0	3	8,090
Nolan	19	4	0	15	108,238
Palo Pinto	16	2	0	14	35,966
Parker	9	1	1	7	36,811
San Saba	2	0	0	2	3,469
Shackelford	58	11	1	46	131,586
Sommerville	2	0	0	2	4,588
Stephens	48	18	5	25	157,443
Stonewall	21	5	0	16	127,793
Taylor	53	9	0	44	213,115
Throckmorton	47	13	1	33	203,665
Total	729	139	18	572	2,366,254

WEST CENTRAL TEXAS
(District 7-B)

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Bankline-Owen	14	11	0	3	47,130
Bartlett	29	23	0	6	98,143
BB	8	8	0	0	23,386
Bessie	9	6	0	3	38,489
Brown County	44	18	1	25	60,473
Burkett-Amerada	4	4	0	0	1,224
Caldwell Ranch	4	2	0	2	7,705
Callahan County	48	22	1	25	55,861
Coleman County	65	39	3	23	107,624
Comanche County	4	3	0	1	9,085
Cook Ranch	18	16	0	2	25,073
Courtney	6	5	0	1	10,085
Dougherty	5	2	0	3	12,288
East Hamlin	34	31	0	3	110,894
Eastland County	25	13	2	10	72,106
Farnsworth	9	9	0	0	31,523
Gibson	8	5	0	3	22,084
Guitar	4	2	0	2	9,326
Haskell County	10	3	0	7	31,320
Hatchett	7	6	0	1	14,416
Hubbard Creek	5	3	0	2	21,426
Humphrey-Gray	13	10	0	3	29,719
Jackson	6	6	0	0	10,670
Jones County	88	56	0	32	187,633
Jud	4	2	0	2	23,213
Juliana	6	4	0	2	29,982
Kadane-Beaumont	42	36	0	6	89,329
Lawn, and S.	4	2	0	2	17,086
Lee Ray	6	3	1	2	23,067
Loyd-Dalton	9	5	1	3	15,470
Morrissett	6	6	0	0	9,768
Noodle	13	12	0	1	42,013
Ogden-Mabee	14	9	2	3	49,993
Overall	4	3	0	1	9,464
Palo Pinto County	7	2	1	4	16,056
Pardue	22	19	0	3	91,014
Pardue Ellenburger	4	3	0	1	24,022
Pitzger	8	3	0	5	36,262
Ross Sloan	4	3	0	1	17,779
Round Top	42	38	1	3	196,969
Santa Anna	44	25	6	13	83,426
Santa Anna, S.	5	3	0	2	9,230
Shackelford County	143	76	4	63	208,731
South Haskell	8	6	0	2	31,021
Stanley	11	6	0	5	50,386
Stephens County	65	37	0	28	116,462
Taylor County	4	1	0	3	15,143
Templeton	5	5	0	0	18,186
Templeton-Gray	7	7	0	0	25,481
Throckmorton County	98	53	2	43	315,031
Wadley	4	3	0	1	8,178
Weinert	10	9	0	1	47,644
Windham-Tannehill	9	8	0	1	11,540
Miscellaneous	237	122	6	109	762,988
Total	1,312	814	31	467	3,434,617

WEST TEXAS
(Districts 7-C and 8)

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	282	232	1	49	1,507,921
February	380	313	0	67	2,026,506
March	467	392	1	74	2,501,092
April	363	316	0	47	1,948,373
May	352	292	3	57	1,807,796
June	458	382	1	75	2,513,579
July	449	381	3	65	2,372,067
August	518	434	2	82	2,579,147
September	420	338	2	80	2,209,688
October	399	321	2	76	2,132,897
November	467	370	1	96	2,499,050
December	450	346	0	104	2,445,075
Total	5,005	*4,117	16	†872	26,543,191

*Incl. 43 distillate wells. †Incl. 7 service wells.

WEST TEXAS
(Districts 7-C and 8)

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	45	10	0	35	308,621
February	51	7	0	44	300,644
March	64	11	0	53	394,486
April	46	14	0	32	277,740
May	42	5	1	36	207,893
June	52	5	1	46	278,174
July	43	7	0	36	239,937
August	57	12	0	45	307,032
September	57	5	2	50	287,556
October	58	7	1	50	287,437
November	73	11	1	61	380,527
December	81	16	0	65	495,326
Total	669	110	6	553	3,765,373

WEST TEXAS
(Districts 7-C and 8)

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	237	222	1	14	1,199,300
February	329	306	0	23	1,725,862
March	403	381	1	21	2,106,606
April	317	302	0	15	1,670,633
May	310	287	2	21	1,599,903
June	406	377	0	29	2,235,405
July	406	374	3	29	2,132,130
August	461	422	2	37	2,272,115
September	363	333	0	30	1,922,132
October	341	314	1	26	1,845,460
November	394	359	0	35	2,118,523
December	389	330	0	39	1,949,749
Total	4,336	4,007	10	319	22,777,818

WEST TEXAS
(Districts 7-C and 8)

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Andrews	10	3	0	7	67,639
Borden	38	7	0	31	295,112
Brewster	2	0	0	2	5,747
Cochran	2	0	0	2	12,729
Coke	19	1	0	18	110,864
Concho	4	0	0	4	10,262
Cottle	2	0	0	2	14,499
Crane	11	4	0	7	61,334
Crockett	59	5	2	52	201,182
Crosby	4	0	0	4	23,078
Culberson	2	0	0	2	8,278
Dawson	6	2	0	4	58,523
Dickens	3	0	0	3	23,848
Ector	13	4	0	9	83,562
Gaines	24	8	0	16	169,678
Garza	26	2	0	24	113,374
Glasscock	3	1	0	2	27,576
Hockley	6	2	0	4	53,588
Howard	12	4	0	8	101,546
Irion	10	1	0	9	33,502
Kent	43	10	0	33	299,555
Kimble	7	1	0	6	18,121
King	14	1	0	13	86,142
Lamb	3	0	0	3	25,172
Loving	2	0	0	2	7,051
Lynn	9	2	0	7	72,825
McCulloch	9	0	0	9	11,603
Martin	6	1	0	5	43,550
Midland	10	6	0	4	96,789
Mitchell	11	1	0	10	85,078
Motley	2	0	0	2	12,023
Pecos	40	3	0	37	104,093
Reagan	4	1	0	3	37,233
Reeves	13	0	0	13	58,763
Runnels	100	16	4	80	433,995
Schleicher	12	2	0	10	77,979
Scurry	34	7	0	27	260,332
Sterling	14	2	0	12	58,178
Sutton	7	0	0	7	40,384
Terry	11	4	0	7	113,990
Tom Green	38	3	0	35	145,848
Upton	9	2	0	7	95,587
Ward	4	1	0	3	25,725
Winkler	3	1	0	2	24,283
Yoakum	4	2	0	2	30,604
Miscellaneous	4	0	0	4	23,429
Total	669	110	6	553	3,765,373

WEST TEXAS
(Districts 7-C and 8)

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Abell Permian	5	5	0	0	16,766
Abell Silurian	7	6	0	1	33,893
Abell Silurian-Montoya	13	11	0	2	66,375
Adair	5	5	0	0	24,265
Adair Wolfcamp	5	5	0	0	46,740
Andector, Ellenburger	23	23	0	0	195,355
Anton Irish	5	5	0	0	30,264
Ballinger & W.	5	1	0	4	18,871
Barnhart	8	7	0	1	73,638
Bateman Ranch	11	10	0	1	49,888
Beddo & N.	13	5	2	6	36,735
Benedum	26	22	0	4	287,003
Block 31 Devonian	10	10	0	0	89,460
Bronte	17	15	1	1	80,502
Buenos	11	10	0	1	39,536
Burt	15	8	0	7	50,626
C Bar	37	34	0	3	135,387
Cedar Lake	40	39	0	1	194,803
Chapman	9	7	0	2	26,435
Clark	11	10	0	1	11,829
Cogdell	187	187	0	0	1,338,690
Cordona Lake	8	6	0	2	46,801
Cree-Sykes	15	15	0	0	59,393
Crockett	8	7	0	1	11,679
Diamond M	201	192	0	9	1,371,334
Diamond M Clear Fork	26	26	0	0	145,663
Dollarhide Clear Fork	20	20	0	0	149,158
Dollarhide Devonian	32	32	0	0	264,752
Dollarhide Ellenburger	6	6	0	0	59,416
Dollarhide Silurian-Devonian	6	6	0	0	53,270
Donnelly	9	8	0	1	39,560
Dorward	40	40	0	0	101,483
Doss	5	5	0	0	45,716
Durham	5	4	0	1	7,712
East Hobbs	6	3	0	3	38,792
Emperor-Holt	5	4	0	1	22,469
Flanagan	7	7	0	0	50,592
Florance	9	6	0	3	25,146
Fort Chadbourne	96	87	0	9	511,081
Fort Chadbourne, W.	5	3	0	2	29,247
Fort Stockton	15	13	1	1	43,832
Fromme	6	4	0	2	9,680
Fullerton Permian	10	10	0	0	74,902
Fullerton Devonian	5	5	0	0	40,014
Garza	99	97	0	2	298,673
Goldsmith Permian	211	208	0	3	1,225,012
Good	28	28	0	0	226,115
Howard Glasscock	34	30	0	4	85,095
Iatan-East Howard	13	13	0	0	37,501
Jameson	19	19	0	0	115,634
Jim Adams	14	13	0	1	61,458
Jordan Ellenburger	13	13	0	0	116,191
Jordan San Andres	8	7	0	1	31,114
Jordan Tubb	5	5	0	0	30,014
Kelly-Snyder	770	755	0	15	5,273,310
Keystone Permian	11	10	0	1	38,040
Keystone Devonian	13	13	0	0	105,955
Keystone South	6	6	0	0	40,285
Landon	8	7	0	1	60,288
Lawson Simpson	14	13	0	1	80,312
Lee Harrison	5	5	0	0	25,010
Lehn	24	18	0	6	42,712
Levelland	230	224	0	6	1,139,426

We get long runs in hard formations with REED Rock Bits

. . . says Clarance Richie, tool pusher for Gross Drilling Company, Great Bend, Kansas.

Mr. Richie says: "I like to use the **REED** '2C' Rock Bit for some of the hard formations we encounter. It takes heavy weights without trouble, it holds gauge in abrasive formations, and I can depend on getting good long runs."

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O. T. Sole, day driller for Gross Drilling Co., is shown with a **REED** "TST-1" Bit. This bit gives fast penetration in the soft formations found in Kansas.

REED ROLLER BIT COMPANY

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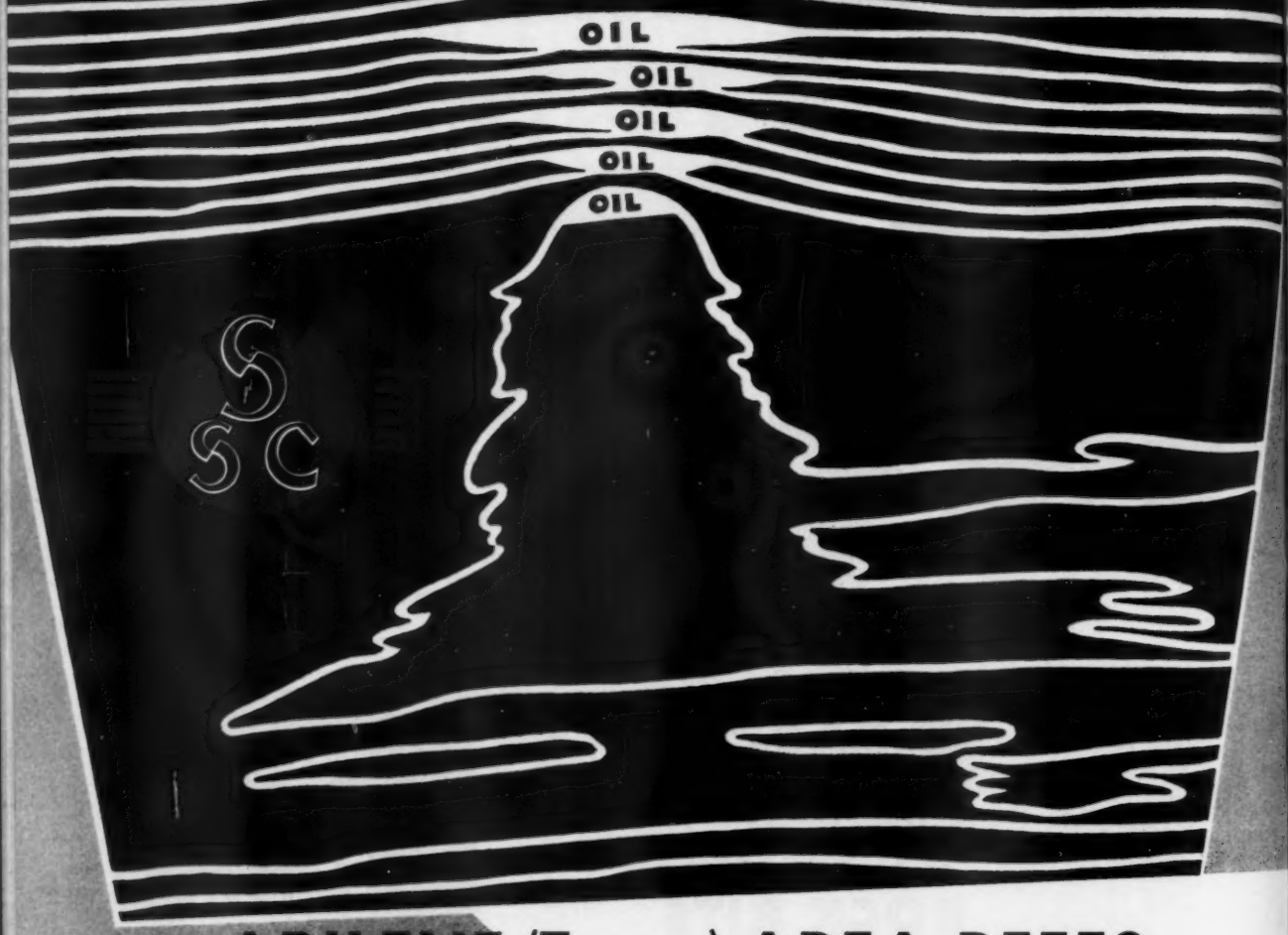
Are you looking for Reefs?



ABILENE (Texas) AREA REEFS

The above sketch is an idealized conception of the general geologic features.

These reefs are of the pinnacle type with somewhat unusual conditions often existing in the interval between the base of the reef proper and limestone resting on underlying dolomite. The illustration shows a discontinuity in reefing conditions on one side during its growth.

Limes and sands draped over the reef are usually oil bearing. The occurrence of oil in the tip of the reef only may not ultimately apply to all reefs in this area.

Shallow draping and reef presence combine to aid in oil exploration in this general area. That is, a shallow drape structure may lead to reef discovery, or a known reef body may lead to a shallow discovery in the overlying draped beds.

SSC Recommends the Following Approach for Seismic Reef Exploration.

NO. 3. HIGHEST RECORD QUALITY

The sedimentary complications that abut and surround organic reefs usually produce similarly complex seismic reflections. Controlled instrument and shooting tests at the beginning of a survey followed by continual supervisory checks during its progress will determine and maintain the instrumental characteristics and shooting procedure required to record satisfactorily the desired energy. Through this approach, SSC obtains SUPERLATIVE RECORD QUALITY—A MUST for a successful reef exploration program.

(This is one of a series)

Field—	Comp.	Oil	Gas	Dry	Footage
McCamey	24	22	0	2	56,106
McCutcheon	5	4	0	1	19,936
McElroy	49	49	0	0	144,215
Malickey	22	21	0	1	44,089
Mason	6	6	0	0	23,532
Midland Farms	58	58	0	0	277,445
Millican	13	12	0	1	79,564
Monroe	10	9	1	0	46,940
Murray Stevens	11	10	0	1	50,005
North Cowden	23	22	0	1	120,434
North Snyder Strawn	14	14	0	0	105,157
North Ward Estes	19	16	0	3	55,714
Ogden Mabee	8	8	0	0	26,086
Olson	6	5	0	1	12,072
Peck	13	13	0	0	154,920
Pecos Valley (HG)	42	24	0	18	68,863
Pegasus	24	24	0	0	314,954
Reinecke	45	43	0	2	319,115
Robertson	8	8	0	0	60,176
Rocker "A"	9	5	0	4	23,178
Ropes	5	4	0	1	47,788
Salt Creek	49	46	0	3	315,913
Sand Hills	46	43	0	3	177,451
Scarborough & N.	5	5	0	0	15,536
Shafter Lake, Ellenburger-Devonian	8	8	0	0	93,793
Shafter Lake Pennsylvanian	1	1	0	0	11,945
Shannon	10	7	0	3	23,737
Sharon Ridge	99	96	0	3	663,175
Sharon Ridge Shallow	79	76	0	3	146,647
Slaughter	41	41	0	0	210,333
Snyder	7	7	0	0	20,431
South Cowden	43	40	0	3	182,959
South Ward	6	5	0	1	14,825
Spraberry	27	24	0	3	185,102
Susan Peak	36	32	0	4	174,524
TCI	8	5	1	2	18,099
Tex Harvey	34	33	0	1	250,908
Three-Bar	17	16	0	1	136,451
Toborg	184	165	0	19	113,816
Tucker	5	5	0	0	27,727
Tunstill	25	21	0	4	85,395
TXL Clear Fork	32	31	0	1	197,873
Vaughn	113	103	1	9	163,175
Vealmoor	36	33	0	3	283,673
Vealmoor, E.	25	24	0	1	189,488
Von Roeder	18	14	0	4	120,309
Waddell	12	11	0	1	47,694
Walker	11	9	0	2	22,086
Wasson	29	29	0	0	149,373
Water Valley	24	15	0	9	32,216
Welch	10	10	0	0	49,436
West Seminole	18	14	0	4	92,663
Wheat	12	9	0	3	51,844
Willis	5	1	0	4	17,109
Winter & W.	18	16	0	2	65,452
World Powell	23	23	0	0	60,506
Yarborough & Allen	11	10	0	1	118,537
Yates	8	8	0	0	10,759
Miscellaneous	254	174	5	75	1,105,671
Total	4,336	4,007	10	319	22,777,818

NORTH CENTRAL TEXAS

(District 9)

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	193	120	1	72	548,107
February	241	124	5	112	748,582
March	322	175	2	145	866,932
April	263	160	1	102	792,326
May	225	124	1	100	642,881
June	301	153	5	143	862,107
July	241	125	1	115	634,969
August	247	128	0	119	686,180
September	221	114	1	106	645,974
October	243	113	2	128	701,706
November	287	177	0	110	862,737
December	237	124	3	110	719,492
Total	3,021	*1,637	22	†1,362	8,711,993

*Incl. 4 distillate wells. †Incl. 39 service wells.

NORTH CENTRAL TEXAS

(District 9)

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	19	5	0	14	69,605
February	47	6	4	37	191,932
March	58	8	2	48	198,708
April	46	6	1	39	163,363
May	38	9	0	29	134,040
June	70	9	2	59	242,431
July	55	12	1	42	167,312
August	58	7	0	51	198,719
September	46	6	1	39	136,690
October	56	6	2	48	185,155
November	54	6	0	48	177,948
December	60	13	2	45	242,951
Total	607	93	15	499	2,108,854

NORTH CENTRAL TEXAS

(District 9)

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	174	115	1	58	478,502
February	194	118	1	75	556,650
March	264	167	0	97	668,224
April	217	154	0	63	628,963
May	187	115	1	71	508,841
June	231	144	3	84	619,676
July	186	113	0	73	467,657
August	189	121	0	68	487,461
September	175	108	0	67	509,284
October	187	107	0	80	516,551
November	233	171	0	62	684,789
December	177	111	1	65	476,541
Total	2,414	1,544	7	863	6,603,139

NORTH CENTRAL TEXAS

(District 9)

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Archer	154	13	0	141	463,890
Baylor	29	2	0	27	99,800
Clay	74	13	0	61	278,441
Cooke	63	5	0	58	158,753
Foard	3	0	0	3	16,368
Hardeman	4	1	0	3	28,513
Jack	66	17	8	41	262,406
Knox	16	5	0	11	65,646
Montague	52	14	0	38	260,588
Wichita	41	4	0	37	111,534
Wilbarger	20	3	0	17	53,626
Wise	25	7	6	12	153,597
Young	60	9	1	50	155,692
Total	607	93	15	499	2,108,854

NORTH CENTRAL TEXAS

(District 9)

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Abercrombie-Wilson	18	12	0	6	67,632
Archer Regular	404	248	0	156	879,725
Archer-Megargel	5	2	0	3	7,137
Bowers & S.	6	5	0	1	17,657
Bryson	4	2	0	2	17,081
Burkburnett	40	17	0	23	67,435
Burk-Clara	13	12	0	1	21,005
Burns-Beacon	8	6	0	2	39,243
Burns-Browning	4	2	0	2	17,524
Burns-Jones	20	11	0	9	67,066
Campsey, E.	4	3	0	1	25,503
Chico, W.	6	4	0	2	34,025
Clay Regular	70	37	0	33	230,902
Cooke Regular	101	80	0	21	169,079
Daly	14	10	0	4	59,749
DeMoss	16	8	0	8	59,471
Electra	34	18	0	16	52,273
Garvey	19	16	0	3	68,542
Gatewood	6	6	0	0	9,887
Hammon	12	12	0	0	56,180
Haws	15	11	0	4	95,000
Holbert Caddo	3	0	0	3	11,455
Holliday	6	4	0	2	22,705
Holliday, E.	4	1	0	3	16,749
Holliday, NW.	28	22	0	6	49,558
Hull-Silk	5	3	0	2	18,435
Hundley	6	6	0	0	38,417
Jack Regular	51	26	2	23	90,861
Jean	4	2	0	2	2,781
Joy	29	19	0	10	125,527
Judy	7	5	0	2	9,278
KMA	9	6	0	3	19,301
Kempner	31	25	0	6	121,332
Kendall	6	5	0	1	15,407
Kennedy	24	20	0	4	155,494
Kimbell-Sims	9	7	0	2	34,144
King-Wilson	4	2	0	2	15,098
Knox	6	2	0	4	15,678
Konrad-Sztykgold	3	3	0	0	18,655
Lazy B	11	9	0	2	51,888
Lewis-Stuart	9	7	0	2	57,511
Lone Prairie	5	4	0	1	29,413
Lutz Mississippian	6	5	0	1	32,891
Lynn	5	4	0	1	12,868
Megargel	4	3	0	1	5,684
Minor, W.	9	7	0	2	57,277
Montague Regular	44	24	0	20	129,917
Muenster	16	12	0	4	23,025
Naomi	2	2	0	0	12,287
North Chalk Hill	15	13	0	2	44,376
Oldham	7	4	0	3	10,467
Pace	3	2	0	1	7,839
Peavy	3	1	0	2	9,149
Petrolia	14	7	0	7	24,472
Post Oak	4	2	0	2	22,218
Prideaux	9	6	0	3	22,523
Queens Peak	6	4	0	2	37,804
Rendham	12	11	0	1	36,794
Reno Baptist	4	4	0	0	15,107
Reno	46	42	0	4	168,683
Reno, E.	4	3	0	1	15,574
Richardson	15	14	0	1	91,529
Ringgold	7	5	0	2	39,791
Rusmag	18	16	0	2	82,445
Seago	3	2	0	1	15,365
Seymour	8	7	0	1	40,965
Spanish Fort	12	11	0	1	22,268
Sturm-Vogtsberger	8	7	0	1	33,560
Sunshine Hill	5	2	0	3	8,253
Thalia	3	1	1	1	4,435
TT Conglomerate	4	4	0	0	19,414
Vernon, S.	7	4	0	3	12,621
Vogtsberger & S.	18	16	0	2	78,079
Walnut Bend	49	48	0	1	213,555
West	4	2	0	2	17,072
Whitson	4	3	0	1	22,846
Wichita Regular	375	222	0	153	564,310
Wilbarger Regular	78	48	0	30	140,374
Wolfe	14	11	0	3	63,722
Woodbine	3	2	0	1	14,231
Worsham-Steed	54	48	0	6	252,720
Young Regular	152	76	0	76	289,207
Miscellaneous	281	139	4	138	925,619
Total	2,414	1,544	7	863	6,603,139

TEXAS PANHANDLE

(District 10)

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	112	80	29	3	335,483
February	71	53	11	7	249,710
March	90	55	26	9	287,712
April	61	42	11	8	183,825
May	63	37	20	6	189,195
June	78	48	23	7	261,887
July	65	44	16	5	203,846
August	82	47	29	6	250,313
September	67	51	12	4	206,788
October	73	43	22	8	228,627
November	65	40	19	6	207,248
December	62	42	14	6	199,422
Total	889	582	232	75	2,804,056

TEXAS PANHANDLE

(District 10)

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	9	1	2	6	65,496
March	1	0	0	1	4,012
April	1	0	0	1	5,131
June	3	0	0	3	26,357
July	1	0	0	1	5,017
August	1	0	0	1	8,810
September	1	0	0	1	10,342
October	2	0	0	2	9,091
November	3	0	0	3	18,022
December	2	0	0	2	14,960
Total	24	1	2	21	167,238

TEXAS PANHANDLE

(District 10)

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	112	80	29	3	335,483
February	62	52	9	1	184,214

Month—	Comp.	Oil	Gas	Dry	Footage
March	89	55	26	8	283,700
April	60	42	11	7	178,694
May	63	37	20	6	189,195
June	75	48	23	4	235,530
July	64	44	16	4	198,829
August	81	47	29	5	241,503
September	66	51	12	3	196,446
October	71	43	22	6	219,536
November	62	40	19	3	189,226
December	60	42	14	4	184,462
Total	865	581	230	54	2,636,818

TEXAS PANHANDLE
(District 10)
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Armstrong	2	0	0	2	9,420
Briscoe	1	0	0	1	8,950
Childress	3	0	0	3	18,974
Donley	2	0	0	2	9,091
Hansford	1	0	0	1	7,148
Hutchinson	1	0	0	1	9,019
Ochiltree	5	0	0	5	52,182
Oldham	1	0	0	1	5,131
Potter	1	0	0	1	4,012
Randall	2	0	0	2	12,498
Roberts	1	0	0	1	11,432
Sherman	4	1	2	1	19,381
Total	24	1	2	21	167,238

TEXAS PANHANDLE
(District 10)
Development Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Carson	82	63	10	9	258,895
Collingsworth	1	0	1	0	1,960
Gray	163	113	38	12	460,503
Hansford	14	0	13	1	37,261
Hartley	9	0	9	0	31,047
Hutchinson	427	387	16	24	1,307,507
Moore	42	8	31	3	144,565
Potter	3	0	3	0	8,721
Roberts	2	0	1	1	17,441
Sherman	98	2	93	3	310,640
Wheeler	24	8	15	1	58,278
Total	865	581	230	54	2,636,818

SOUTHEAST NEW MEXICO
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	43	30	5	8	172,359
February	60	42	3	15	299,121
March	47	36	1	10	223,803
April	43	33	2	8	207,836
May	40	31	1	8	207,829
June	55	40	5	10	219,224
July	27	21	0	6	96,613
August	65	46	1	18	325,072
September	43	31	4	8	178,568
October	35	23	3	9	200,373
November	44	33	3	8	164,372
December	39	29	3	7	208,953
Total	541	*395	31	115	2,504,123

*Incl. 3 distillate wells.

SOUTHEAST NEW MEXICO
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	5	1	0	4	14,512
February	9	3	0	6	73,637
March	6	2	0	4	39,428
April	4	1	0	3	25,402
May	6	2	0	4	40,290
June	6	2	0	4	36,465
July	3	0	0	3	8,690
August	6	0	0	6	30,500
September	2	0	0	2	6,510
October	6	1	0	5	56,620
November	2	0	0	2	2,810
December	10	4	0	6	65,498
Total	65	*16	0	49	400,392

*Incl. 1 distillate well.

SOUTHEAST NEW MEXICO
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	38	29	5	4	157,817
February	51	39	3	9	225,484
March	41	34	1	6	184,375
April	39	32	2	5	182,434
May	34	29	1	4	167,539
June	49	38	5	6	182,759
July	24	21	0	3	87,923
August	59	46	1	12	294,572
September	41	31	4	6	172,058
October	29	22	3	4	143,753
November	42	33	3	6	161,562
December	29	25	3	1	143,455
Total	476	379	31	66	2,103,731

SOUTHEAST NEW MEXICO
Wildcat Completions by Counties

County	Comp.	Oil	Gas	Dry	Footage
Chaves	17	4	0	13	101,690
Curry	1	0	0	1	6,860
Eddy	20	4	0	16	86,961
Lea	27	8	0	19	204,881
Total	65	16	0	49	400,392

SOUTHEAST NEW MEXICO
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Artesia	30	23	0	7	72,389
Bagley	14	11	0	3	130,840
Bough	5	4	0	1	48,585
Brunson	18	18	0	0	141,224
Chisum	7	1	0	6	47,873
Cooper-Jal	26	16	8	2	85,506
Crossroads	4	3	0	1	41,420
Denton	7	6	0	1	73,263
Drinkard & N.	43	40	2	1	290,473
Eaves	4	2	2	0	12,959
Empire	45	37	0	8	23,354
Forrest	4	2	0	2	9,587
Fren	9	9	0	0	20,383
Grayburg-Jackson	30	30	0	0	95,305
Hare	10	10	0	0	77,897
Hightower	3	0	0	3	30,386
House	8	7	0	1	43,723
Langlie-Mattix	56	48	5	3	189,854
Loco Hills	10	6	0	4	29,848
McMillan	4	4	0	0	2,898
Maljamar & N.	15	10	0	5	62,537
Monument-Abo	9	5	4	0	45,173
Paddock	3	2	0	1	15,882
Red Lake	7	7	0	0	12,463
Skaggs	7	7	0	0	33,152
South Eunice	5	0	5	0	17,976
South Leonard	10	9	1	0	35,251
Teague	4	4	0	0	38,679
Turkey Track	8	5	0	3	18,849
Vacuum	15	12	0	3	70,940
Warren	3	3	0	0	27,715
Watkins	4	4	0	0	13,660
Wilson & W.	8	4	0	4	31,082
Miscellaneous	41	30	4	7	212,605
Total	476	379	31	66	2,103,731

NORTHWEST NEW MEXICO
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	4	1	3	0	14,030
February	5	0	5	0	13,075
March	9	0	9	0	27,397
April	2	0	2	0	6,899
May	6	0	6	0	21,047
July	3	0	2	1	15,777
August	5	0	4	1	18,097
September	9	0	6	3	33,299
October	9	0	7	2	39,117
November	6	0	5	1	24,216
December	8	0	8	0	30,209
Total	66	1	57	8	243,163

NORTHWEST NEW MEXICO
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	1	0	0	7,802
February	1	0	1	0	4,667
July	1	0	0	1	8,162
August	1	0	0	1	3,457
September	5	0	3	2	14,356
October	2	0	0	2	14,562
November	1	0	0	1	3,424
December	2	0	2	0	4,122
Total	14	1	6	7	60,552

NORTHWEST NEW MEXICO
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	3	0	3	0	6,228
February	4	0	4	0	8,408
March	9	0	9	0	27,397
April	2	0	2	0	6,899
May	6	0	6	0	21,047
July	2	0	2	0	7,615
August	4	0	4	0	14,640
September	4	0	3	1	18,943
October	7	0	7	0	24,555
November	5	0	5	0	20,792
December	6	0	6	0	26,067
Total	52	0	51	1	182,611

NORTHWEST NEW MEXICO
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Rio Arriba	6	1	0	5	29,097
San Juan	8	0	6	2	31,455
Total	14	1	6	7	60,552

NORTHWEST NEW MEXICO
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Blanco, San Juan	11	0	11	0	47,124
Blanco Basin, San Juan	4	0	4	0	18,938
Kutz Canyon, San Juan	21	0	21	0	45,407
LaPlata Area, San Juan	3	0	3	0	15,870
NW Glade Area, San Juan	4	0	4	0	12,924
West Kutz, San Juan	4	0	4	0	12,369
Miscellaneous	5	0	4	1	29,979
Total	52	0	51	1	182,611

NORTH LOUISIANA
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	114	72	16	26	442,462
February	89	54	9	26	324,690
March	91	56	13	22	318,804
April	105	63	13	29	375,106
May	100	59	18	23	368,173
June	119	79	13	27	347,318
July	110	61	7	42	363,754
August	150	91	12	47	478,364
September	109	66	10	33	363,838
October	105	49	18	38	366,475
November	121	60	12	49	463,006
December	114	63	13	38	414,461
Total	1,327	773	154	400	4,626,451

NORTH LOUISIANA
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	10	2	0	8	59,539
February	9	1	0	8	59,834
March	7	0	1	6	22,337
April	6	1	0	5	31,618
May	6	1	0	5	39,620
June	8	0	0	8	35,503
July	11	1	0	10	60,570
August	15	1	1	13	67,397
September	11	3	0	8	69,452
October	16	1	0	15	68,111
November	23	4	0	19	129,010
December	14	2	0	12	80,443
Total	136	17	2	117	723,434

NORTH LOUISIANA
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	104	70	16	18	382,923
February	80	53	9	18	264,856
March	84	56	12	16	296,467
April	99	62	13	24	343,488
May	94	58	18	18	328,553
June	111	79	13	19	311,815
July	99	60	7	32	303,184
August	135	90	11	34	410,967
September	98	63	10	25	294,386
October	89	48	18	23	298,364
November	98	56	12	30	333,996
December	100	61	13	26	334,018
Total	1,191	756	152	283	3,903,017

NORTH LOUISIANA
Wildcat Completions by Parishes

Parish—	Comp.	Oil	Gas	Dry	Footage
Bienville	6	1	0	5	27,013
Bossier	6	0	0	6	29,259
Caddo	11	1	0	10	48,828
Caldwell	4	0	0	4	17,290
Catahoula	8	1	0	7	52,569
Claiborne	5	1	0	4	44,068
Concordia	22	3	0	19	154,918
De Soto	9	1	1	7	32,922

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The fundamental reason for the phenomenal growth of the oil industry has been multiple but distinctly individual effort. This is signified by the large number of oil producing companies which have operated independently through the years. The relatively free economy of the industry is more important today than ever before.

SCHLUMBERGER

Schlumberger is proud to have contributed to, and been a part of, the industrial development resulting from the Spindletop discovery.

SCHLUMBERGER WELL SURVEYING CORPORATION • HOUSTON

Only $198.00*

For this high quality high pressure pump

But you can't put a price tag on the services it performs...

CHEMICAL INJECTOR Designed especially for *continuous* operation at high pressure, pumping aqueous solutions, corrosion inhibitors and emulsion-breaking chemicals.

PROPORTIONING PUMP Handles all types of fluids . . . corrosive or otherwise . . . with complete safety and precision. Volume can be regulated in direct proportion with volume of fluid being treated.

LUBRICANT PUMP Especially valuable where lubricant-sealed pumps are in use. Constantly maintains any desired pressure to prevent leakage and burning out of pump rods or shafts.

HIGH PRESSURE TESTING Provides hydrostatic test pressures up to 20,000 psi. Output pressures easily regulated to meet requirements.

ADVANCED DESIGN makes this low price possible!

The Texsteam MSM Pump has a high strength, aluminum alloy body, with stainless steel or Hastelloy pistons and valves. All parts operate in an oil bath and are sealed against dust, grit and atmospheric influences. It's light weight (only 55 lbs. complete), *portable*, smooth and vibrationless, *requires no bolting down*. Operating off air or gas pressures, it provides output or injection pressures up to 20,000 psi. Accurately controlled, selective volumes range from ½ pint to 1050 gallons per day.

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*With ¼" or ½" Pistons
With 1" Piston.....$215.00
With 1¼" Piston..... 255.00
Prices F.O.B. Houston, Texas, and subject to change without notice.

BETTIS CORPORATION

320 South 66th Street P. O. Box 9091 Houston 11, Texas

Parish—	Comp.	Oil	Gas	Dry	Footage
Franklin	4	0	0	4	19,322
Grant	6	1	0	5	30,682
LaSalle	8	1	0	7	42,200
Lincoln	3	2	0	1	25,382
Madison	1	0	0	1	4,566
Moorehouse	2	0	0	2	11,047
Natchitoches	2	1	0	1	6,177
Ouachita	3	0	0	3	11,837
Red River	4	0	0	4	10,294
Richland	6	0	1	5	20,236
Sabine	2	0	0	2	10,335
Tensas	4	2	0	2	32,742
Union	9	1	0	8	48,584
Webster	3	1	0	2	24,724
West Carroll	1	0	0	1	3,608
Winn	7	0	0	7	14,831
Total	136	17	2	117	723,434

NORTH LOUISIANA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Ara	4	1	1	2	32,233
Athens	20	16	2	2	159,107
Bear Creek	6	2	2	2	49,688
Bellevue	30	21	0	9	33,374
Big Creek-Delhi	27	12	0	15	85,345
Bull Bayou	6	6	0	0	15,196
Caddo-Pine Island	462	367	24	71	919,903
Caspiana	7	6	0	1	32,237
Catahoula Lake & W.	18	8	0	10	84,113
Converse	8	3	0	5	16,981
Cotton Valley	5	3	0	2	27,152
De Soto-Red River	45	23	0	22	119,647
Elm Grove	15	11	0	4	18,040
Greenwood	12	9	1	2	42,764
Haynesville & E.	47	35	0	12	365,863
Hico-Knowles	8	6	0	2	231,562
Joyce	16	8	0	8	18,870
Larto Lake & E. & So.	4	0	0	4	24,557
Lisbon & N.	74	55	1	18	413,735
Logansport	5	3	2	0	32,387
Longwood	5	3	1	1	27,309
Monroe	111	0	109	2	243,715
Nebo	16	9	0	7	65,885
Olla	6	4	0	2	17,834
Ora	4	2	0	2	9,122
Pleasant Hill	6	4	0	2	19,329
Ruston	5	4	0	1	46,234
Saline Lake & N.	5	2	0	3	30,210
Shreveport	9	7	0	2	50,106
Sibley	10	9	0	1	59,477
Sligo	5	1	2	2	33,451
Trout Creek	4	2	0	2	14,331
Tullos	27	18	0	9	42,675
Vidalia	9	5	0	4	54,563
Waskom	37	29	2	6	148,596
Zwolle	4	0	0	4	10,258
Miscellaneous	109	62	5	42	307,168
Total	1,191	756	152	283	3,903,017

SOUTH LOUISIANA

Total Completions by Months

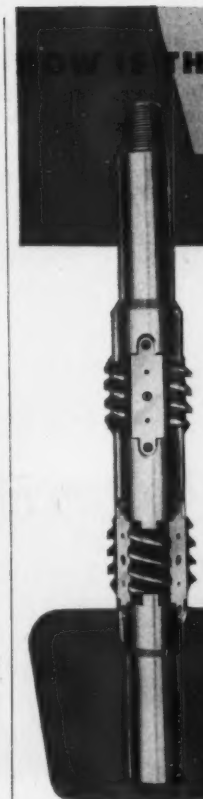
Month—	Comp.	Oil	Gas	Dry	Footage
January	104	70	7	27	884,734
February	79	50	3	26	678,382
March	109	77	1	31	937,118
April	75	46	5	24	694,857
May	105	76	4	25	930,920
June	97	67	1	29	878,371
July	85	58	1	26	757,169
August	105	67	3	35	926,958
September	88	44	3	41	769,841
October	85	58	3	24	778,900
November	107	57	5	45	948,007
December	87	50	6	31	742,966
Total	1,126	*720	42	†364	9,928,223

*Includes 90 distillate wells. †Includes 2 service wells.

SOUTH LOUISIANA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	16	9	1	6	161,322
February	16	4	2	10	172,419
March	15	8	0	7	156,862
April	16	3	0	13	163,986
May	13	4	0	9	143,948
June	12	4	0	8	134,206
July	12	4	0	8	119,296
August	18	5	0	13	179,580
September	14	1	0	13	127,348



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—the Vital I. D. of your Casing?

OU CAN SAFELY, easily and economically remove rrs from gunshot holes, imbedded bullets, or aths of cement or hardened mud from the inner wall of casing. ★ No more cut and torn rubber swab cups, or rubber packing elements on testers, packers and cement retainers. ★ The strong, safe Baker ROTO-VERT Casing Scraper has two sets of deeply hard-faced blades which shear away all obstructions and overlap to scrape the full 360-degree inner surface of casing. ★ Cannot "screw down" past gunshot burrs because the cutting edges follow the contour of a LEFT-HAND screw. ★ Specify the ROTO-VERT when there are hundreds of burrs to be removed, or the well is to be scraped from top to bottom. ★ You can still use time-tested Baker Model "B" Casing Scraper, Product No. 620-B, for normal scraping when rotary equipment is available.

Your casing really "comes clean" when you use the successful BAKER ROTO-VERT Model "C" Casing Scraper

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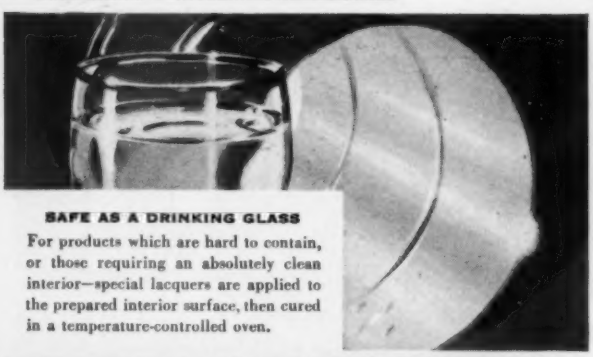
Consider the merchandising opportunities this remarkable new package presents! The durable and lustrous finish of Rheemcote drums, lithographed with *your* distinctive colors, trademarks and designs, will billboard your product and name before the eyes of the world.



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For products which are hard to contain, or those requiring an absolutely clean interior—special lacquers are applied to the prepared interior surface, then cured in a temperature-controlled oven.

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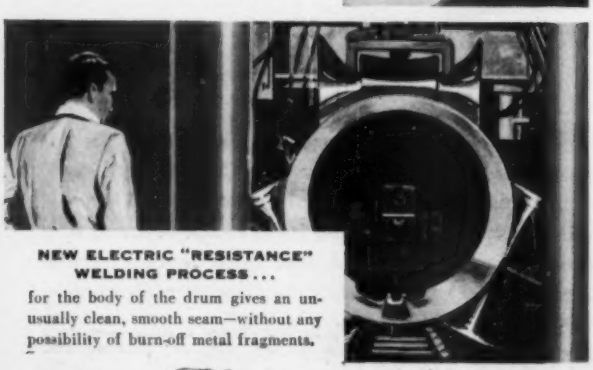
applies the base coat to the steel surface, assuring positive adhesion for utmost resistance against weather and handling.



NEW ELECTRIC "RESISTANCE" WELDING PROCESS...

for the body of the drum gives an unusually clean, smooth seam—without any possibility of burn-off metal fragments.

After many years of research, the Rheem Manufacturing Company, world's largest maker of steel shipping containers, is proud to have developed the Rheemcote Process in this, its 25th year of service to industry.

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Month—	Comp.	Oil	Gas	Dry	Footage
October	10	3	1	6	100,760
November	9	2	0	7	98,889
December	15	2	0	13	140,642
Total	166	49	4	113	1,699,258

SOUTH LOUISIANA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	88	61	6	21	723,412
February	63	46	1	16	505,963
March	94	69	1	24	780,256
April	59	43	5	11	530,871
May	92	72	4	16	786,972
June	85	63	1	21	744,165
July	73	54	1	18	637,873
August	87	62	3	22	747,378
September	74	43	3	28	642,493
October	75	55	2	18	678,140
November	98	55	5	38	849,118
December	72	48	6	18	602,324
Total	960	671	38	251	8,228,965

SOUTH LOUISIANA

Wildcat Completions by Parishes

Parish—	Comp.	Oil	Gas	Dry	Footage
Acadia	13	7	0	6	129,542
Allen	1	0	0	1	8,608
Ascension	1	0	0	1	11,310
Assumption	2	1	1	0	15,090
Avoyelles	3	1	0	2	20,424
Beauregard	11	1	0	10	100,012
Calcasieu	17	2	0	15	151,248
Cameron	10	2	2	6	109,141
East Baton Rouge	2	1	0	1	20,330
Evangeline	1	0	0	1	12,406
Iberia	5	2	0	3	57,981
Iberville	2	0	0	2	22,849
Jefferson	7	2	0	5	71,265
Jeff Davis	3	1	0	2	22,430
Lafayette	2	0	0	2	22,108
Lafourche	6	3	0	3	77,222
Livingston	1	0	0	1	8,806
Orleans	1	0	0	1	13,505
Plaquemines	14	9	0	5	145,033
Pointe Coupee	11	5	0	6	114,396
Rapides	7	3	0	4	47,885
St. Bernard	1	0	0	1	13,003
St. Charles	2	0	0	2	20,045
St. James	2	0	0	2	19,538
St. John the Baptist	1	0	0	1	12,071
St. Landry	6	1	0	5	69,195
St. Martin	3	0	0	3	24,852
St. Mary	11	4	1	6	122,185
Terrebonne	12	4	0	8	153,272
Vermilion	5	0	0	5	49,002
Washington	1	0	0	1	11,991
West Baton Rouge	1	0	0	1	11,400
West Feliciana	1	0	0	1	11,113
Total	166	49	4	113	1,699,258

SOUTH LOUISIANA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Abbeville	4	2	0	2	36,378
Anse La Butte	11	5	0	6	60,796
Avery Island	5	5	0	0	36,042
Avondale	7	5	0	2	60,122
Bancroft	5	4	0	1	40,082
Bayou Blue	30	18	1	11	151,873
Bayou Couba	7	6	0	1	53,029
Bayou Mallet	13	10	0	3	115,436
Bay de Chene	11	10	0	1	119,687
Bay Marchand-Block 2 (offshore)	22	17	1	4	117,842
Bay St. Elaine	8	7	0	1	83,636
Belle Isle	4	3	0	1	40,553
Big Island	59	35	0	24	344,830
Bully Camp	6	5	0	1	49,543
Caillou Island	18	15	0	3	178,738
Delacroix	5	5	0	0	51,357
Delta Duck Club	5	3	0	2	61,099
DeQuincy	18	14	0	4	122,619
Des Allemands	8	4	1	3	75,561
Dog Lake	8	8	0	0	67,838
Duck Lake	14	13	1	0	172,873
East Moss Lake	12	11	1	0	115,118
East Perkins	4	0	1	3	29,625
Ellis	4	1	1	2	43,120
Eugene Isle-Block 32 (offshore)	3	2	0	1	38,105
Eugene Isle-Block 110 (offshore)	3	0	1	2	38,947
Fordoche	16	16	0	0	151,087
Four Isle	4	3	1	0	43,419
Glenmora	4	4	0	0	43,406
Golden Meadow	25	22	0	3	118,578
Grand Bay	9	8	0	1	82,687
Grand Isle-Block 16 (offshore)	8	0	1	7	74,670
Hurricane Creek	6	4	0	2	53,531
Iota	6	3	2	1	56,721
Iowa	13	9	0	4	131,208
Jennings	12	11	0	1	32,248
Krotz Springs	9	7	1	1	98,350
Lafitte	5	4	0	1	46,559
Lake Mongoulois	4	3	0	1	46,987
Lake Pelto	8	7	0	1	84,330
Lake Sand	7	4	1	2	81,186
Lake Washington	14	4	0	10	85,216
Leesville	9	8	0	1	91,711
Lewisburg	5	4	0	1	51,410
Lockport	4	4	0	0	24,287
Main Pass-Blk. 69 (offshore)	10	9	0	1	77,890
Maxie	5	3	0	2	56,038
Napoleonville	4	2	0	2	23,728
North Bancroft	12	10	0	2	109,350
North Cankton	4	2	0	2	33,316
North Tepetate	5	3	1	1	41,115
Perkins	9	9	0	0	60,683
Pine Prairie	5	1	0	4	23,291
Point-A-La-Hache	33	28	1	4	362,116
Port Barre	13	9	1	3	89,021
Quarantine Bay	14	12	0	2	138,499
Ritchie	7	5	0	2	34,056
Romere Pass	15	15	0	0	149,524
St. Gabriel	4	3	1	0	45,003
St. Martinsville	6	5	0	1	23,015
Savoy	4	3	0	1	41,562
Section 28	10	9	0	1	103,516
Shuteston	8	5	1	2	82,763
Sorrento	8	3	0	5	29,868
South Bayou Mallet	4	3	0	1	38,579
South Jeanerette	4	1	0	3	33,968

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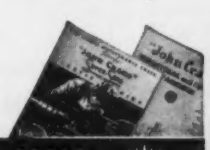

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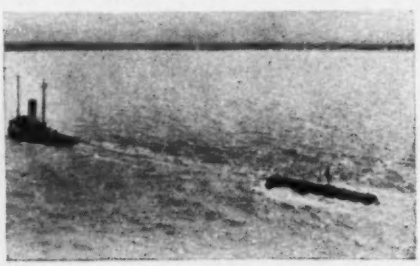
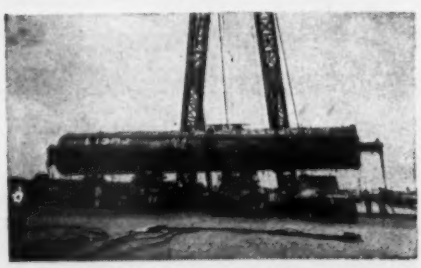
A completely fabricated column is lowered into the Thames near the works—

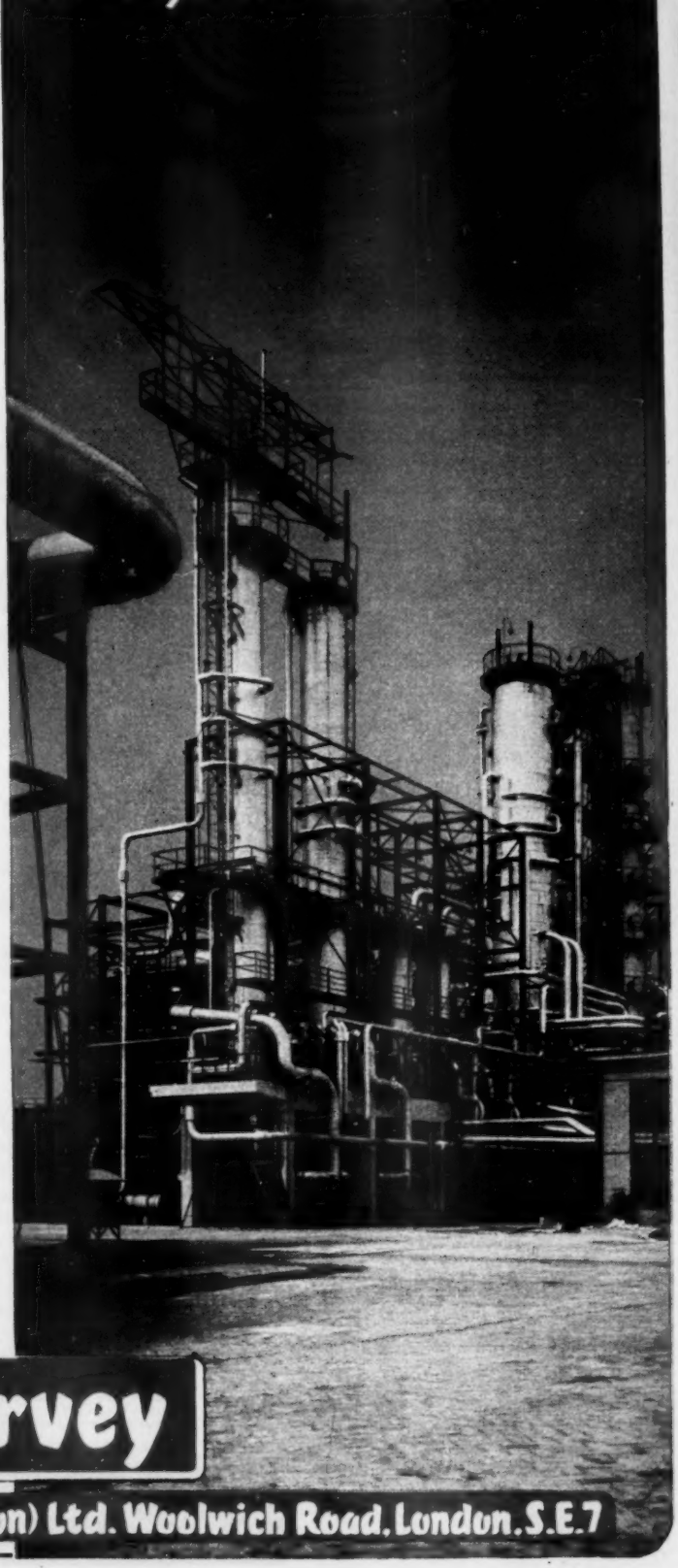


Towed across the North Sea to Holland—



and lifted from the water at Pernis—quickly to take its part in this new Oil Refinery.

Harveys the answer!



Send for Catalogue OG 750.

Harvey

G. A. Harvey & Co. (London) Ltd. Woolwich Road, London, S.E.7

Field—	Comp.	Oil	Gas	Dry	Footage
South Shuteston	7	6	0	1	72,465
Stella	4	2	0	2	34,388
Sulphur Mines	8	5	1	2	40,554
Sunshine	14	13	0	1	149,153
Tigre Lagoon & S.	7	2	2	3	82,658
University	4	3	0	1	37,057
Vacherie-Hester	6	1	0	5	44,359
Valentine	5	4	0	1	49,824
Venice	5	4	0	1	56,075
Vinton	10	8	0	2	52,804
Weeks Island	26	22	0	4	290,447
Welsh	8	8	0	0	56,172
West Bay	11	10	1	0	109,535
West Cote Blanche Bay	7	7	0	0	69,475
West Hackberry	9	7	0	2	64,021
West Lake Verret	7	5	1	1	61,117
Miscellaneous	176	91	14	71	1,659,511
Total	960	671	38	251	8,228,965

ARKANSAS

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	31	18	0	13	103,668
February	29	15	0	14	98,987
March	28	17	0	11	85,782
April	30	19	0	11	101,542
May	32	19	0	13	112,447
June	43	26	0	17	127,366
July	40	20	1	19	129,530
August	40	23	1	16	151,297
September	36	23	0	13	110,035
October	22	13	0	9	75,664
November	46	31	0	15	128,806
December	30	18	0	12	116,559
Total	407	242	2	163	1,341,683

ARKANSAS

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	9	0	0	9	31,272
February	10	1	0	9	43,548
March	4	0	0	4	19,392
April	6	0	0	6	24,437
May	8	2	0	6	36,993
June	13	0	0	13	44,430
July	11	2	0	9	36,584
August	13	3	0	10	64,473
September	7	2	0	5	30,452
October	4	0	0	0	16,994
November	8	0	0	8	30,060
December	7	0	0	7	37,832
Total	100	10	0	90	416,467

ARKANSAS

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	22	18	0	4	72,396
February	19	14	0	5	55,439
March	24	17	0	7	66,390
April	24	19	0	5	77,105
May	24	17	0	7	75,454
June	30	26	0	4	82,936
July	29	18	1	10	92,946
August	27	20	1	6	86,824
September	29	21	0	8	79,583
October	18	13	0	5	58,670
November	38	31	0	7	98,746
December	23	18	0	5	78,727
Total	307	232	2	73	925,216

ARKANSAS

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Clark	2	0	0	2	3,852
Columbia	8	0	0	8	51,509
Hempstead	5	0	0	5	13,010
Jefferson	2	0	0	2	6,192
Lafayette	6	1	0	5	33,021
Little River	2	0	0	2	6,925
Miller	10	0	0	10	48,704
Nevada	5	0	0	5	18,578
Ouachita	26	1	0	25	82,587
Sevier	2	0	0	2	2,181
Union	25	8	0	17	130,974
Miscellaneous	7	0	0	7	18,934
Total	100	10	0	90	416,467

ARKANSAS

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Bodcaw	11	9	0	2	30,647
Buckner	3	0	0	3	15,340
Cairo	3	2	0	1	23,720
Catesville	4	3	0	1	29,872
Champagnolle	3	2	0	1	10,725
El Dorado, S. & E.	6	4	0	2	20,174
Falcon	3	0	0	3	9,466
Hibank	13	11	1	1	22,258
Hillsboro	3	3	0	0	7,150
Lisbon	23	11	0	12	49,001
Locust Bayou	3	2	0	1	5,652
Nick Springs	12	9	0	3	32,253
Rainbow	9	5	0	4	28,137
Sandy Bend	17	17	0	0	40,040
Smackover	69	56	0	13	178,151
Spirit Lake	4	4	0	0	16,458
Stephens-Curry	40	27	0	13	122,311
Urbana & W.	40	40	0	0	104,760
Village	4	3	0	1	23,854
Wesson	19	17	0	2	45,658
Miscellaneous	18	7	1	10	109,589
Total	307	232	2	73	925,216

MISSISSIPPI

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	25	11	0	14	181,172
February	22	9	0	13	156,191
March	28	13	1	14	197,941
April	35	14	2	19	267,547
May	25	11	1	13	178,913
June	34	16	1	17	235,827
July	21	7	1	13	143,922
August	30	9	1	20	211,456
September	23	7	1	15	165,256
October	25	9	1	15	188,989
November	22	8	0	14	155,588
December	23	10	0	13	175,162
Total	313	*124	9	180	2,257,964

*Includes 36 distillate wells.

MISSISSIPPI

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	7	0	0	7	49,143
February	9	1	0	8	72,106
March	12	1	0	11	89,836
April	17	4	0	13	133,965
May	11	2	0	9	84,088
June	11	1	0	10	76,075
July	9	0	0	9	60,526
August	11	0	0	11	68,690
September	9	0	0	9	66,960
October	15	2	0	13	114,138
November	9	0	0	9	69,650
December	10	1	0	9	88,799
Total	130	12	0	118	973,976

MISSISSIPPI

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	18	11	0	7	132,029
February	13	8	0	5	84,085
March	16	12	1	3	108,105
April	18	10	2	6	133,582
May	14	9	1	4	94,825
June	23	15	1	7	159,752
July	12	7	1	4	83,396
August	19	9	1	9	142,766
September	14	7	1	6	98,296
October	10	7	1	2	74,851
November	13	8	0	5	85,938
December	13	9	0	4	86,363
Total	183	112	9	62	1,283,988

MISSISSIPPI

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Adams	48	8	0	40	351,512
Amite	1	0	0	1	12,500
Claiborne	2	0	0	2	18,664
Clarke	3	0	0	3	16,724
Copiah	2	0	0	2	20,828
Franklin	4	0	0	4	36,360
Harrison	1	0	0	1	9,776
Hinds	1	0	0	1	9,017
Holmes	1	0	0	1	5,265
Itawamba	2	0	0	2	2,018
Jackson	1	0	0	1	9,030
Jasper	1	0	0	1	6,315
Jefferson	17	1	0	16	125,299
Jones	3	1	0	2	24,346
Lamar	3	0	0	3	28,858
Lauderdale	2	0	0	2	14,775
Lawrence	1	0	0	1	11,165
Lee	1	0	0	1	1,761
Lincoln	3	1	0	2	32,899
Madison	3	0	0	3	24,388
Neshoba	3	0	0	3	15,398
Noxubee	3	0	0	3	9,288
Pearl River	1	0	0	1	9,554
Perry	2	0	0	2	17,507
Scott	2	0	0	2	18,219
Sharkey	1	0	0	1	3,538
Simpson	1	0	0	1	9,354
Warren	1	0	0	1	9,515
Wayne	4	0	0	4	26,537
Wilkinson	6	0	0	6	44,258
Yazoo	6	1	0	5	51,308
Total	130	12	0	118	973,976

MISSISSIPPI

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Baxterville	22	19	2	1	181,595
Bude	5	3	0	2	55,207
Carthage Point	4	1	0	3	41,299
Gwinville	13	9	2	2	107,950
Heidelberg, East	3	3	0	0	14,929
Kingston	4	2	0	2	27,026
LaGrange	14	7	0	7	90,506
LaGrange, South	8	6	0	2	51,334
Natchez	3	0	0	3	25,112
Oldenburg	5	2	0	3	34,660
Pickens	4	0	0	4	31,925
Sand Hill	3	0	0	3	22,529
Sharon	6	2	3	1	33,920
Sibley	10	7	0	3	66,138
Soso	9	8	0	1	61,668
Tinsley	10	7	0	3	52,826
West Lincoln	3	1	0	2	32,147
Yellow Creek	33	25	0	8	169,164
Miscellaneous	24	10	2	12	184,051
Total	183	112	9	62	1,283,988

ALABAMA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	3	1	0	2	13,672
February	2	0	1	1	6,326
March	2	0	0	2	1,968
April	4	1	0	3	15,233
May	4	1	0	3	17,424
June	3	2	0	1	14,777
July	6	2	0	4	31,608
August	5	4	0	1	17,803
September	1	0	0	1	6,126
October	3	1	0	2	13,318
November	7	4	0	3	39,497
December	3	2	0	1	10,280
Total	43	18	1	24	187,832

ALABAMA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	0	0	1	6,680
February	2	0	1	1	6,326
March	2	0	0	2	1,968
April	2	0	0	2	8,478
May	2	0	0	2	10,458
June	1	1	0	0	8,093
July	4	0	0	4	24,889
September	1	0	0	1	6,126
October	1	0	0	1	6,499
November	3	0	0	3	21,524
December	1	0	0	1	3,936
Total	20	1	1	18	104,977

ALABAMA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	2	1	0	1	6,992
April	2	1	0	1	6,755
May	2	1	0	1	6,966
June	2	1	0	1	6,684
July	2	2	0	0	6,719
August	5	4	0	1	17,603
October	2	1	0	1	6,819
November	4	4	0	0	17,973
December	2	2	0	0	6,344
Total	23	17	0	6	82,855

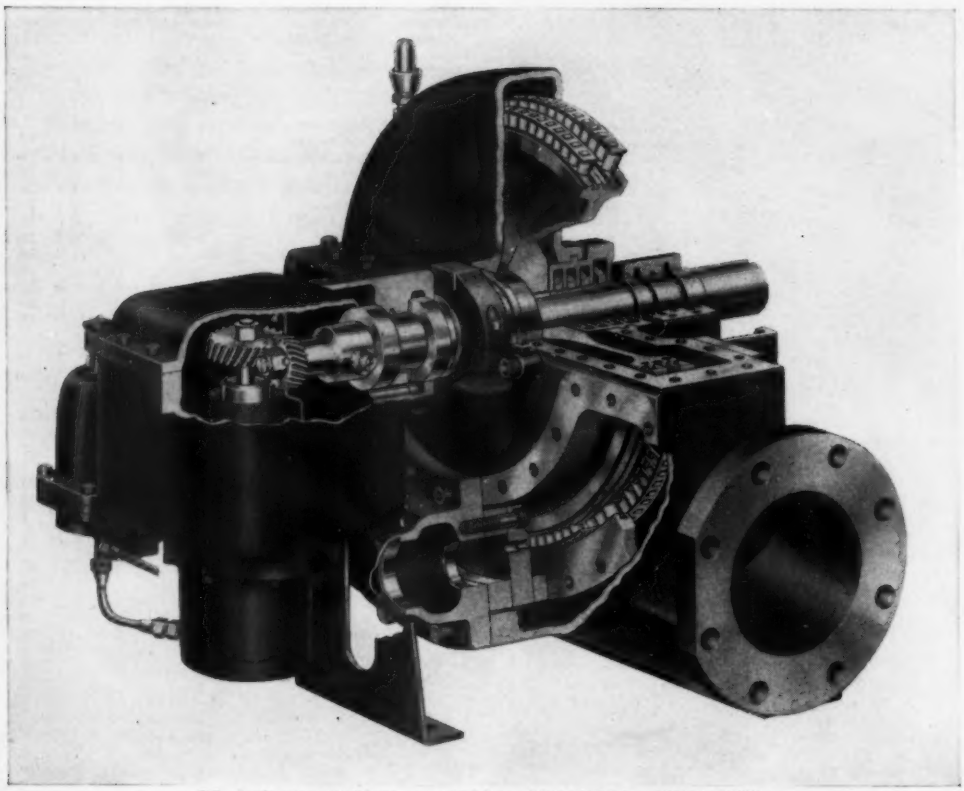
ALABAMA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Baldwin	5	0	0	5	32,920
Blount	1	0	0	1	365
Choctaw	3	0	0	3	11,508
Clarke	5	1	0	4	32,785
Conecuh	1	0	0	1	5,012
Escambia	1	0	0	1	6,936

Now More Than Ever . . .

YOUR BEST TURBINE



DP single-stage turbines are rated from 10 to 1200 hp, 1000 to 5000 rpm

Type DP

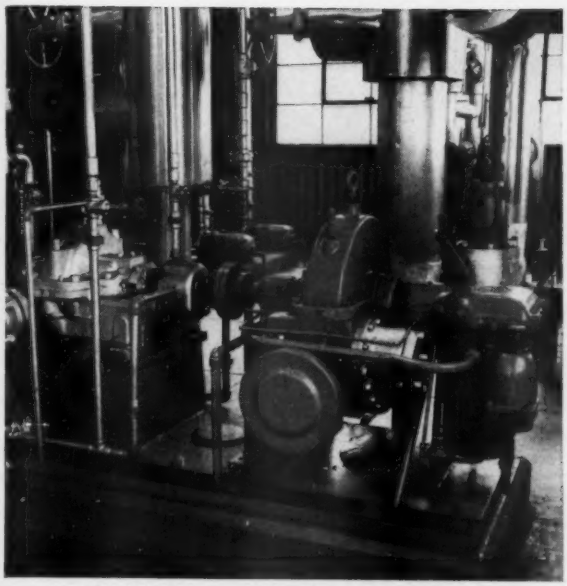
Since the introduction of the DP turbine, more than two years ago, General Electric has been telling mechanical-drive turbine users that their best turbine buy was a *standard* design, wherever it could be properly applied. Nowadays, with the emphasis on increased output, the advantages which turbine standardization offers are even more important.

Standardization means that turbines of different rating and size have mostly identical construction features. This speeds delivery, cuts manufacturing costs, makes possible a better design and a better turbine. If you're not familiar with the General Electric DP, we suggest that you contact your nearest G-E sales office or send for a copy of bulletin GEA-4955, "A New Standard in Mechanical Drive Turbines." Write to *Apparatus Dept., General Electric Company, Schenectady, N. Y.*

GREATER RELIABILITY

From its totally enclosed governor to its durable babbitt-faced bearings, General Electric's DP turbine is built to provide greater productivity through greater reliability. Standardization has made possible "extras" such as pressure lubrication, Monel-sprayed shaft, self-positioning packings, a totally enclosed hydraulic governor. You can count on your DP for safe, dependable service in hazardous atmospheres and on tough, continuous-process assignments.

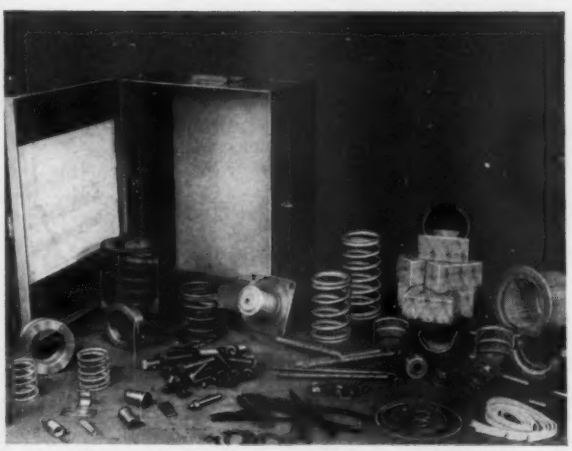
DRIVE IS A STANDARD



This DP drives a centrifugal pump in a refinery

WIDE APPLICATION FLEXIBILITY

In plants which require shifting of equipment from job to job, a standard DP frequently eliminates the need for extra drives. Because most parts are identical for all ratings, speed range and shaft horsepower can be easily and economically changed to fit new conditions. Though the DP's 30% adjustable speed range is usually adequate, a new range can be set anywhere from 800 to 5000 rpm simply by substituting a new emergency governor and governor gears. A change in horsepower rating usually requires a new nozzle plate and a few valve parts. These parts are all available on immediate delivery and save the expense of a new turbine which would be required with a less flexible, non-standard unit.



Standard spare parts kits are available with all DP turbines

EASIER, QUICKER MAINTENANCE

Because most parts of standard DP's are interchangeable on all models, spares can be easily stocked, and maintenance work handled quicker. You can have delivered with the turbine a 91-item spare parts kit, sufficient to service several machines. Socket-head cap screws are used throughout for quick disassembly. Standard shaft height, keyways, and coupling fits simplify installation. You can move DP's from job to job without change in the base structure.

GENERAL ELECTRIC

252-40

County—	Comp.	Oil	Gas	Dry	Footage
Houston	1	0	0	1	4,010
Lawrence	1	0	0	1	1,603
Marion	1	0	1	0	2,302
Mobile	1	0	0	1	7,536
Total	20	1	1	18	104,977

ALABAMA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Gilbertown	22	16	0	6	74,839
S. Carlton	1	1	0	0	8,016
Total	23	17	0	6	82,855

FLORIDA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	1	0	0	11,576
February	3	0	0	3	12,152
March	2	0	0	2	17,389
April	2	0	0	2	6,889
May	1	0	0	1	3,470
June	2	0	0	2	14,701
August	1	0	0	1	6,598
September	1	0	0	1	3,833
Total	13	1	0	12	76,608

FLORIDA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	3	0	0	3	12,152
March	1	0	0	1	5,514
April	2	0	0	2	6,889
May	1	0	0	1	3,470
June	1	0	0	1	3,043
August	1	0	0	1	6,598
September	1	0	0	1	3,833
Total	10	0	0	10	41,499

FLORIDA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	1	0	0	11,576
March	1	0	0	1	11,875
June	1	0	0	1	11,658
Total	3	1	0	2	35,109

FLORIDA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Baker	1	0	0	1	3,043
Columbia	1	0	0	1	3,470
Escambia	1	0	0	1	6,598
Levy	1	0	0	1	2,013
Monroe	1	0	0	1	6,702
Suwannee	1	0	0	1	3,833
Taylor	3	0	0	3	10,326
Walton	1	0	0	1	5,514
Total	10	0	0	10	41,499

FLORIDA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Sunniland	3	1	0	2	35,109
Total	3	1	0	2	35,109

GEORGIA

Wildcat Completions by Months*

Month—	Comp.	Oil	Gas	Dry	Footage
February	1	0	0	1	194
March	1	0	0	1	3,806
June	1	0	0	1	4,195
Total	3	0	0	3	8,195

*No development completions.

GEORGIA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Decatur	1	0	0	1	4,195
Seminole	2	0	0	2	4,000
Total	3	0	0	3	8,195

OKLAHOMA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	406	250	19	137	1,503,878
February	372	236	20	116	1,376,072
March	448	277	25	146	1,517,554
April	430	249	11	170	1,496,611
May	487	287	33	167	1,582,306
June	462	280	32	150	1,591,482
July	551	334	37	180	1,990,653
August	440	251	12	177	1,790,766
September	435	263	10	162	1,604,414
October	465	296	9	160	1,764,740
November	490	292	16	182	1,846,678
December	473	289	25	159	1,799,906
Total	5,459	*3,304	249	†1,906	19,865,060

*Incl. 54 distillate wells. †Includes 94 service wells.

OKLAHOMA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	64	13	2	49	272,629
February	59	14	1	44	228,516
March	76	16	2	58	260,737
April	68	5	2	61	237,685
May	80	18	1	61	320,693
June	75	22	1	52	293,097
July	72	16	2	54	289,287
August	79	16	0	63	310,380
September	69	13	3	53	270,004
October	72	15	0	57	270,201
November	72	7	4	61	324,524
December	54	8	3	43	230,530
Total	840	163	21	656	3,308,263

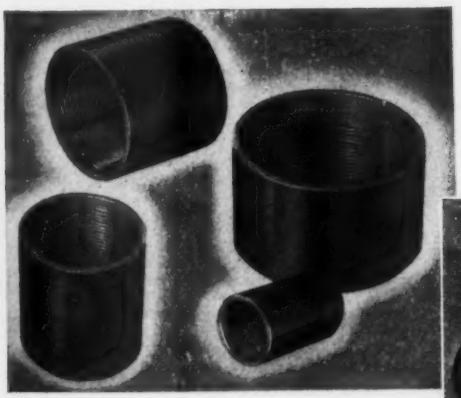
OKLAHOMA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	342	237	17	88	1,231,249
February	313	222	19	72	1,147,556
March	372	261	23	88	1,256,817
April	302	244	9	109	1,258,926
May	407	269	32	106	1,261,613
June	387	258	31	98	1,298,385
July	479	318	35	126	1,701,386
August	361	235	12	114	1,480,386
September	366	250	7	109	1,334,410
October	393	281	9	103	1,494,539
November	418	285	12	121	1,522,154
December	419	281	22	116	1,569,376
Total	4,619	3,141	228	1,250	16,556,797

ACCURATE THREADING

...Key to the Dependability of HARRISBURG Couplings and Flanges



HARRISBURG Seamless Steel Pipe Couplings are manufactured to A.P.I. and A.I.S.I. specifications.

HARRISBURG Drop-Forged Steel Pipe Flanges are manufactured to A.S.A. standards.

THREAD ACCURACY and constant rigid inspection assure superior strength and endurance in *Harrisburg* Couplings and Flanges. Couplings are threaded on special machines to insure accuracy of form, height, angle, and lead. Flange threads are perfect in height, angle, taper, and gauging.

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LOS ANGELES — Howard Supply Company, Republic Supply Co. of California

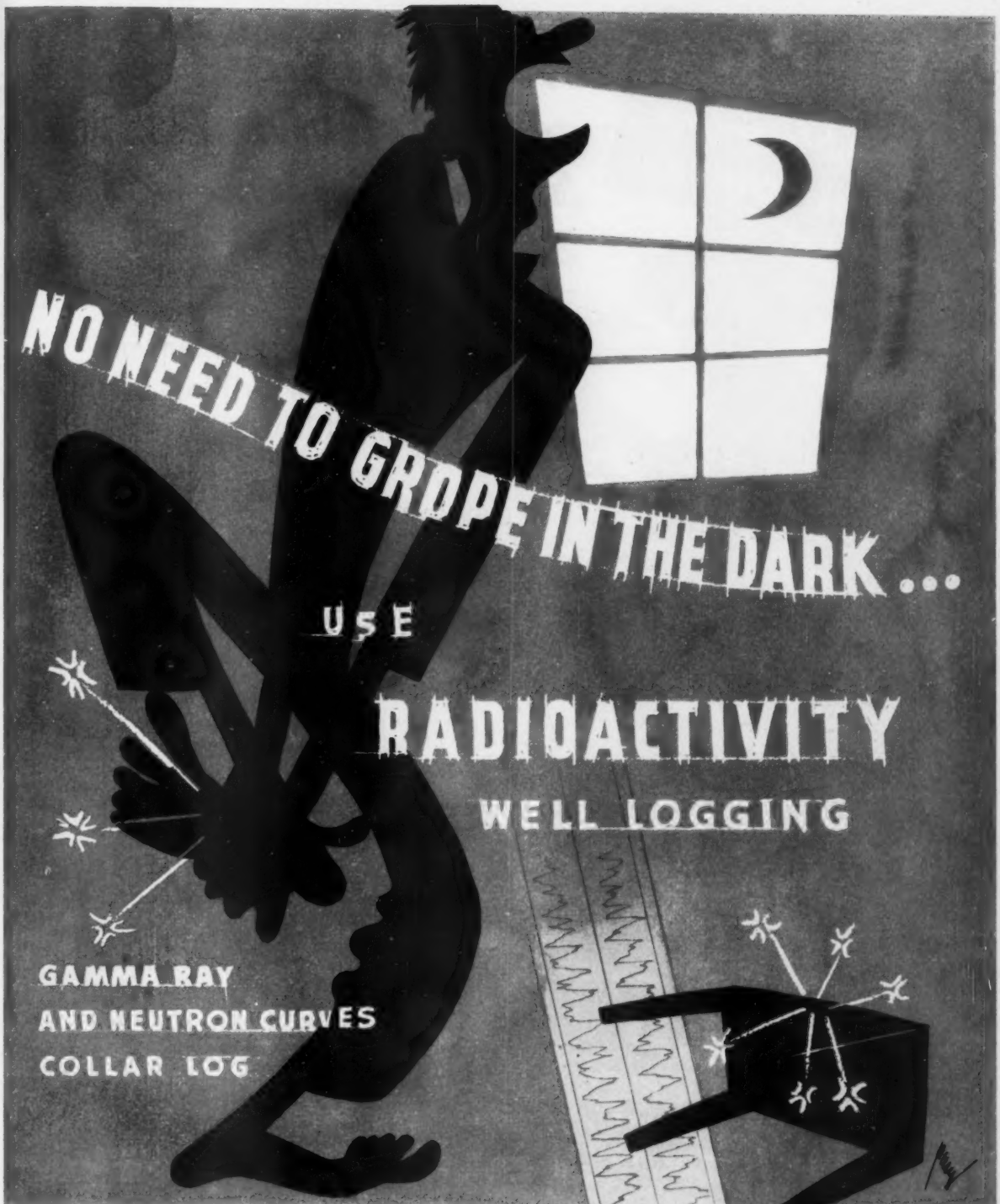
TULSA — W. C. Norris, Manufacturer, Inc.

HARRISBURG STEEL CORPORATION

Harrisburg 6, Pennsylvania

Custom-Built Quality Products in Quantity

98 YEARS IN PENNSYLVANIA'S CAPITAL



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REED
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"We're setting footage records with REED *Super Shrink-Grip Tool Joints"*

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OKLAHOMA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Beckham	7	2	0	5	63,004
Carter	22	6	0	16	124,566
Cleveland	11	7	0	4	81,409
Coal	6	1	1	4	20,485
Comanche	32	2	1	29	29,308
Cotton	43	2	0	41	85,509
Creek	42	10	1	31	134,054
Garfield	7	0	1	6	38,817
Garvin	27	7	0	20	132,025
Grant	8	2	0	6	39,546
Greer	7	0	0	7	14,903
Hughes	22	2	1	19	73,603
Jefferson	31	4	0	27	93,823
Kay	17	1	0	16	60,115
Kingfisher	5	0	0	5	40,961
Kiowa	26	2	0	24	30,057
Lincoln	78	15	2	61	342,085
Logan	25	4	1	20	149,708
Love	11	2	0	9	59,037
McClain	9	5	0	4	77,710
McIntosh	8	0	0	8	25,442
Major	13	12	0	1	93,809
Marshall	9	2	1	6	23,907
Murray	14	1	0	13	25,548
Noble	18	4	1	13	81,326
Okfuskee	37	8	3	26	136,720
Oklahoma	17	7	0	10	106,577
Okmulgee	7	1	0	6	18,230
Osage	24	4	0	20	62,542
Pawnee	28	5	0	23	88,857
Payne	37	10	1	26	143,110
Pittsburg	6	0	2	4	24,609
Pontotoc	22	2	2	18	49,784
Pottawatomie	22	11	0	11	99,063
Seminole	34	4	0	30	126,213
Sequoyah	6	0	1	5	5,927
Stephens	41	13	0	28	185,954
Tillman	24	0	0	24	85,451
Miscellaneous	37	5	2	30	234,469
Total	840	163	21	656	3,308,263

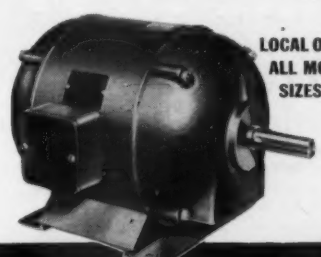
OKLAHOMA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Ada, E.	8	3	1	4	11,266
Allen & No.	56	35	2	19	140,385
Alma, No.	29	27	0	2	153,879
Ara & No.	8	8	0	0	44,829
Asher, W.	7	7	0	0	24,984
Avant & W.	7	2	0	5	13,470
Bald Hill	31	15	0	16	41,413
Barnsdall & So.	13	0	1	12	24,442
Bayou	98	90	0	8	379,625
Bebee & N. & NE & S & SE & W	106	76	3	27	240,942
Beggs & N & S	6	3	0	3	14,485
Benjamin	26	24	1	1	85,931
Big Horse	9	7	0	2	10,454
Big Pond	5	0	1	4	16,064
Blackwell & E. & S.	8	6	0	2	24,532
Bowlegs & SW.	14	7	0	7	55,091
Branstetter	6	2	0	4	8,153
Brock & E. & W.	65	54	0	11	264,280
Burbank	16	7	0	9	47,102
Cache Creek & S.	13	2	0	11	19,954
Camp & NW.	9	7	1	1	50,845
Cement & E. & W.	45	34	2	9	145,484
Ceres, S. & SE.	17	16	0	1	75,565
Coffee Creek	13	7	0	6	80,614
Coon Creek	6	5	0	1	35,597
Cromwell & E.	15	13	0	2	50,135
Cruce & SW.	28	19	0	9	76,802
Cushing & E.	97	77	0	20	241,722
Davenport & N. & S. & SE. & W.	34	25	0	9	120,293
Deaner & N. & W.	17	11	1	5	57,050
Denver, SE.	7	5	0	2	40,918
Pepew & SE.	8	5	0	3	27,719
Dilworth	12	8	0	4	40,590
Domes	16	11	0	5	30,087
Dora	10	7	2	1	25,258
Duncan, N. & W.	11	2	1	8	33,414
Earlsboro & E. & N. & W.	11	5	1	5	45,303
Edmond, W.	7	6	1	0	47,280
Elk City	105	104	0	1	1,060,288
Empire Comanche	37	22	0	15	93,594
Fish & E. & W.	6	1	0	5	17,133
Fourdee	8	8	0	0	40,737
Fox-Graham	51	45	5	1	236,226
Frederick & S. & SE.	61	50	0	11	182,082
Ft. Sill & NE. & NW.	17	7	0	10	15,009
Garden Grove & N. & SW.	14	9	0	5	47,138
Garr & N. & S.	32	25	0	7	101,484
Garrett	8	6	0	2	27,693
Glenn	51	27	0	24	81,314
"Golden Trend" pools	339	291	2	46	2,100,811
Greasy Creek	15	5	4	6	37,658
Hallett & NW.	7	5	1	1	19,103
Happy Valley	34	31	0	3	118,615
Hardy	9	8	0	1	22,064
Hawkins, NW.	7	4	1	2	9,494
Healdton	19	8	0	11	28,034
Herd & E. & NW.	9	7	0	2	14,436
Hewitt & NW. & W.	31	19	0	12	98,800
Holdenville & E. & W.	46	30	3	13	85,843
Hoover & N. & NE.	6	2	0	4	12,722
Hugoton	128	0	126	2	357,633
Jennings & E. & S. & SE. & SW.	27	22	0	5	72,310
Kellyville & N. & S. & W.	23	15	0	8	50,164
Keystone & E.	11	7	0	4	25,191
Kidd-Butner	7	1	0	6	13,464
Knox & SE.	32	28	0	4	98,753

You say "goodby" to damage from moisture when you put in All-Weather Motors. They're protected, *inside and out*, against condensation or a cloudburst. And they're effectively cooled by "Clean Sweep" end-to-end ventilation; shielded from mice, snakes, or airborne debris; built to keep going year-after-year with no attention at all—yet you pay not a penny premium.

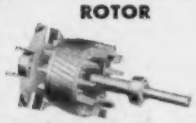
FOR LOWER PUMPING COSTS. *Bearings?* R & M adopted fully sealed, pre-lubricated ball bearings in 1939. *End Heads?* Exclusive design gives motor full-height protection. *Insulation?* The finest there is—phase groups as well as coil windings are isolated. Cool-running, long-lasting R & M Motors are today's *best* oil field buy. Check up on any of the thousands now in use.



LOCAL OIL FIELD STOCKS. ALL MOTOR TYPES. SIZES TO 50 H. P.

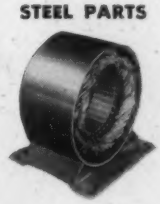
Write for Free Bulletin No. O-400-G.

ROTOR



Finished rotor is sprayed with a special rust-inhibitor which covers armature, shaft, and cadmium-plated fan used on smaller motor sizes. Larger motors have aluminum fans.

STEEL PARTS



Complete assembly of body and shell, with the stator, is dipped in "Robbinite," and this moisture-resisting undercoating—developed by Robbins & Myers—is then baked on.

CAST IRON PARTS

End-heads and terminal box are carefully cleaned and given the same anti-corrosion treatment frequently specified by our Armed Forces for use in damp climates. Painting follows.

R&M *All-Weather Oil Country* MOTORS

ROBBINS & MYERS, INC., Motor Div., SPRINGFIELD 99, OHIO • BRANTFORD, ONT.

Field—	Comp.	Oil	Gas	Dry	Footage
Komalty	15	6	0	9	10,262
Konawa & SW. & W.	15	5	1	9	42,212
Lake Creek	6	5	0	1	3,935
Langston & S.	10	8	0	2	56,733
Lauderdale	20	15	0	5	46,062
Lawton & N.	166	96	0	70	53,966
Little River & SE.	11	6	0	5	29,443
Loco	8	1	1	6	16,656
Lone Grove & SW.	13	8	0	5	56,092
Long View, NE.	14	13	0	1	61,709
Lucien	9	8	0	1	35,719
Madill	10	0	0	10	5,211
Manion & N.	22	15	0	7	32,637
Mannford & E. & N. & SE.	30	20	1	9	73,729
Maramec	9	5	0	4	24,602
March & N.	23	18	0	5	79,932
Marshall	11	7	0	4	66,674
Maud & S.	14	12	0	2	56,507
Mehan, NW.	6	2	0	4	23,878
Mervine & N.	10	3	0	7	21,542
Milroy & N.	21	19	0	2	32,591
Morvin & W.	6	6	0	0	30,517
Mosquito Creek & W.	9	7	0	2	22,346
Mt. Hope, NW.	10	9	0	1	37,659
Munger & SE.	12	7	2	3	74,003
New England	17	13	0	4	38,150
Norfolk & SE & W.	58	43	0	15	167,486
Okla. City	10	4	1	5	62,083
Olive	20	13	0	7	56,694
Olympic	13	8	0	5	22,448
Osage City	14	4	0	10	19,138
Oscar & N.	20	11	0	9	33,965
Palacine & S.	156	133	0	23	388,109
Pawhuska & SW.	11	6	0	5	21,492
Paxton, E.	6	3	1	2	15,257
Peck, W.	9	8	0	1	29,275
Pershing & E. & NE.	19	13	0	6	38,794
Pickett Prairie	6	2	0	4	16,010
Pioneer & E.	8	6	1	1	18,173
Pollyanna	6	4	0	2	14,885
Rabbit Creek & W.	17	12	0	5	28,542
Randlett & SW. & W.	11	6	0	5	18,850
Ringling, N. & NW.	9	5	0	4	25,345
Ringwood	121	118	0	3	827,399
Roady, NE.	7	5	1	1	32,858
Robberson & SE.	11	5	1	5	14,191
Rosenwald	26	25	0	1	90,349
Rover & N.	10	5	1	4	37,651
Searight & S.	18	12	1	5	50,419
Seay	13	10	0	3	9,822
Seminole & W.	11	5	1	5	35,609
Shawnee & E. & NE.	10	7	0	3	47,594
Sholem Alechem & W.	278	258	6	14	1,355,723
Skellyville	11	8	0	3	35,411
Slick & N. & S. & SW.	13	9	0	4	35,293
Sparks, E. & S.	47	38	1	8	174,213
Spencer	11	2	0	9	20,655
Spring	33	21	0	12	58,316
Steedman & N.	9	4	2	3	21,778
St. Louis & N.	31	27	0	4	120,843
Sylvian, E. & NW. & S. & SW.	14	9	0	5	50,444
Tatums	90	65	1	24	203,387
Transco, NW.	18	15	1	2	32,823
Tryon & NW.	15	14	0	1	60,599
Velma & W.	116	96	3	17	580,002
Walters	6	2	0	4	13,711
Wanette & E.	16	14	0	2	51,910
Webb, N.	10	6	0	4	43,524
Weleetka & N. & S.	7	3	1	3	16,792
Wetumka, E. & S.	47	32	5	10	144,225
Wewoka & E. & N. & NE.	13	4	0	9	33,312
Wildhorse	10	7	0	3	17,139
Witcher	49	40	1	8	311,211
Woodrow	11	7	0	4	23,022
Woolaroc	8	3	0	5	12,964
Woolsey	16	12	0	4	36,965
Wynona	10	2	0	8	16,365
Yale, SE. & SW.	17	15	0	2	48,226
Yale-Quay	27	15	0	12	86,423
Miscellaneous	535	201	34	300	1,880,546
Total	4,619	3,141	228	1,250	16,556,797

KANSAS
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	284	140	25	119	917,225
February	262	128	22	112	827,235
March	310	172	13	125	1,006,817
April	283	150	20	113	903,470
May	364	183	32	149	1,178,037
June	368	179	44	145	1,154,416
July	338	168	33	137	1,086,371
August	364	182	45	137	1,107,193
September	354	156	43	155	1,105,493
October	395	178	63	154	1,261,876
November	356	172	31	153	1,147,111
December	332	177	29	126	1,048,783
Total	4,010	1,985	400	*1,625	12,744,027

*Incl. 60 service wells.

KANSAS
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	48	9	0	39	177,126
February	47	8	0	39	164,508
March	51	6	1	44	177,588
April	49	6	1	42	166,393
May	84	16	1	67	296,373
June	85	10	2	73	293,566
July	60	11	1	48	203,873
August	77	11	2	64	279,834
September	84	10	4	70	285,575
October	81	17	0	64	284,073
November	72	7	1	64	257,293
December	78	17	1	60	272,589
Total	816	128	14	674	2,858,791

★ Hot Applied Tar Base Coatings
★ Cold Applied Tar Base Coatings—Series 100
★ Alkyd Base Coatings—Series 200
★ Chlorinated Rubber Base Coatings—Series 300
★ Vinyl Base Coatings—Series 400
★ Phenolic Base Coatings—Series 500

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Now Available

Booklet containing specific information on Pitt Chem Protective Coatings will be sent upon request.

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W&D 3417

PITTSBURGH COKE & CHEMICAL CO.
GRANT BUILDING, PITTSBURGH 19, PA.

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Attend the N.A.C.E. Convention in New York City, March 13th to 16th

KANSAS

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	236	131	25	80	740,099
February	215	120	22	73	662,727
March	259	166	12	81	829,229
April	234	144	19	71	737,077
May	280	167	31	82	881,664
June	283	169	42	72	860,850
July	278	157	32	89	882,498
August	287	171	43	73	827,359
September	270	146	39	85	819,918
October	314	161	63	90	977,803
November	284	165	30	89	889,818
December	254	160	28	66	776,194
Total	3,194	1,857	386	951	9,885,236

KANSAS

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Barber	6	1	0	5	29,865
Barton	112	25	1	86	385,843
Butler	41	2	1	38	116,835
Coffey	6	0	0	6	10,520
Cowley	22	2	0	20	64,536
Ellis	61	8	0	53	221,626
Ellsworth	12	0	0	12	38,629
Graham	51	12	0	39	198,290
Greenwood	17	2	0	15	33,995
Harvey	7	1	0	6	22,565
Kingman	17	1	0	16	64,994
Lyon	14	2	0	12	35,172
McPherson	17	2	0	15	55,907
Marion	9	2	0	7	24,837
Morris	11	1	0	10	28,705
Nemaha	6	1	0	5	21,034
Osborne	6	0	0	6	20,733
Pawnee	8	0	1	7	31,842
Phillips	17	4	0	13	61,630
Pratt	8	0	0	8	37,023
Reno	11	1	0	10	45,642
Rice	27	6	1	20	92,250
Rooks	59	11	0	48	216,068
Rush	6	0	0	6	23,028
Russell	38	7	0	31	126,769
Saline	8	4	0	4	26,593
Sedgwick	23	1	0	22	75,855
Stafford	75	21	0	54	291,906
Sumner	21	1	1	19	83,535
Trego	8	1	0	7	32,158
Wabaunsee	18	2	0	16	58,867
Woodson	11	4	0	7	18,245
Miscellaneous	63	3	9	51	263,294
Total	816	128	14	674	2,858,791

KANSAS

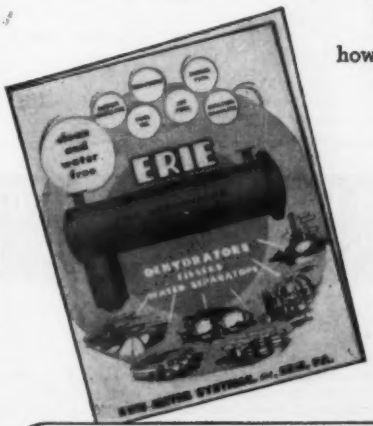
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Ainsworth, S.	6	3	0	3	20,203
Amboy	8	2	0	6	30,832
Atherton	9	3	0	6	26,497
Augusta & N.	33	21	1	11	78,835
Axman	7	2	0	5	24,209
Barry & E. & SE.	14	6	0	8	48,060
Bartholomew	45	40	0	5	169,676
Bass & NW.	8	7	0	1	30,875
Batesville	9	2	0	7	15,145
Beaver & N. & NW. & S.	17	10	0	7	57,362
Bedford	7	5	0	2	27,128
Bemis-Shutts	39	25	0	14	139,866
Berland & N. & SW.	69	55	0	14	250,869
Big Creek	52	46	0	6	169,946
Bloomer	11	9	0	2	36,430
Blue Hill	6	4	0	2	20,612
Boyd	31	25	0	6	106,312
Bryant	32	27	0	5	109,271
Burdick	7	3	0	4	16,371
Burnett & N. & NW. & SW.	17	13	0	4	60,151
Burrton & NE.	11	8	0	3	39,572
Butwick	10	5	0	5	29,927
Carroll & SW.	9	3	0	6	30,753
Catherine & NW. & S.	20	9	1	10	72,281
Chandler	8	8	0	0	27,935
Chase	41	22	0	19	122,628
Cheyenne View & SW.	29	24	0	5	99,465
Curry	7	6	0	1	23,482
Davis Ranch & E.	12	9	0	3	38,724
Dreiling	7	6	0	1	23,810
Dubuque	7	5	0	2	23,593
Dunaway	11	6	0	5	37,596

How to Remove

99 99/100% of ENTRAINED WATER . . . The Erie Dehydrator-Filter and Water Separator is used in Refineries and Pipe Lines to remove free water from petroleum products. A factual bulletin is available to show how this unit is built—how it operates—its dimensions and capacities and suggestons for its use throughout industry.

Write for Bulletin 1186.



ERIE

ERIE METER SYSTEMS, INC.

MAIN OFFICE AND PLANT, ERIE, PA., U. S. A.

Put Your Pumping Costs *on the SKIDS!*

AMPCO

with corrosion-resistant Ampco Centrifugal Pumps

Here is a corrosion-resistant pump — *production-built* and *production-priced* — to handle your salt-water brine and other corrosive liquids. You no longer have to pay a premium for a specially-built pump to lick this cost problem.

Ampco's single-stage, single-suction centrifugal pump gives you long life, high efficiency, and low maintenance. Every part is made of carefully selected grades of long-wearing, corrosion-resistant Ampco bronze.

Available to meet your needs with close-coupled or pedestal mounting — or with special mountings like the oil-field skid unit illustrated above. Write today for recommendations and complete information.

"AMPCO-ize to Economize"

AMPCO

Ampco Metal, Inc. Milwaukee 46, Wisconsin

West Coast Plant • Burbank, California

OG-1 P-3

Field—	Comp.	Oil	Gas	Dry	Footage
Elbing & E. & N.	30	23	0	7	75,187
El Dorado	96	81	0	15	234,950
Emmerman & NE.	7	5	0	2	24,771
Eulert	15	12	0	3	50,787
Eureka	42	32	0	10	81,967
Eveleigh	10	3	0	7	34,480
Fairport	35	26	0	9	116,284
Fairview	9	3	0	6	26,968
Fankhouser	8	5	0	3	15,420
Florence	6	2	0	4	14,407
Forest Hill & N.	36	25	0	11	117,939
Geneseo	22	14	0	8	72,111
Georob	14	14	0	0	39,084
Gorham	19	16	0	3	62,271
Greenwich & N.	8	6	0	2	23,606
Grow	8	4	0	4	29,464
Hall-Gurney	55	47	0	8	157,011
Hamilton	8	2	0	6	14,916
Hammeke	8	4	0	4	27,168
Hammer & N.	19	15	0	4	65,219
Harter	6	3	0	3	24,839
Hazel & S. & W.	17	10	0	7	62,993
Hazlett & N.	44	34	0	10	112,435
Heinz	7	5	0	2	23,088
Hildebrand & S.	6	5	0	1	22,926
Hoagland	7	6	0	1	11,362
Homer & SE.	10	7	0	3	25,213
Hufford	7	4	0	3	27,152
Huffstutter	36	35	0	1	127,161
Hugoton	379	0	373	6	1,013,750
Iuka	7	6	0	1	30,053
Kowalsky & NW. & S. & SW.	12	6	0	6	41,682
Kraft-Prusa & NE.	107	84	0	23	363,602
Krueger	10	10	0	0	35,565
Lamont	9	5	0	4	15,958
Lost Springs & SE.	20	13	0	7	47,227
Mansur	11	6	0	5	24,606
Marcotte	13	8	0	5	45,470
Max	21	13	0	8	85,925
Merle	6	5	0	1	21,580
Morel & E.	52	44	0	8	277,971
Mueller & W.	11	8	0	3	39,401
Nettie	6	5	0	1	21,191
Northampton	11	6	0	5	42,684
Novotny	8	7	0	1	28,094
Olsson & N. & NE. & NW.	16	9	0	7	51,313
Oscar	7	4	0	3	26,761
Otis-Albert	8	5	0	3	28,825
Padgett	17	15	0	2	50,439
Palco & SE.	15	9	0	6	55,038
Potwin & S.	24	17	0	7	68,031
Prosper & E.	6	0	0	6	19,481
Pundsack & N.	8	1	0	7	29,686
Quincy	17	6	0	11	26,939
Rattlesnake & N. & SW. & W.	10	5	0	5	39,005
Ray	7	7	0	0	25,258
Raymond	17	9	0	8	56,364
Rhodes	6	6	0	0	27,370
Rick	12	8	0	4	40,359
Ritz-Canton	10	7	0	3	30,116
Robbins	10	4	0	6	31,898
Robison	10	5	0	5	27,085
Rothgarn	12	3	0	9	43,529
Ruder	8	4	0	4	28,891
Russell & E. & NE.	18	10	0	8	56,170
Ryan	19	18	0	1	71,684
Seeley-Wick	6	5	0	1	11,689
Severy & N.	7	5	0	2	7,877
Silica & S. & SW.	70	44	0	26	236,241
Sittner	6	2	0	4	18,300
Smith-Denning	7	4	0	3	31,578
St. John Townsite	11	7	0	4	43,629
Stoltenberg	26	20	1	5	83,639
Sugar Loaf	7	6	0	1	24,848
Syms & E.	10	7	0	3	35,805
Teall & N. & NE. & NW.	13	9	0	4	50,417
Towanda	8	8	0	0	20,287
Trapp	96	68	0	28	327,287
Vacek	6	3	0	3	19,897
Virgil & N.	67	49	0	18	115,491
Walters	7	4	0	3	26,219
Weide	7	6	0	1	10,912
Wellington	10	8	0	2	36,847
Wherry & N.	8	6	0	2	27,267
White Cotton	8	4	0	4	23,715
Wiggins	7	3	0	4	12,289
Winterscheid	21	16	0	5	37,092
Zyba & SW.	6	3	0	3	23,225
Miscellaneous	646	325	10	311	1,962,089
Total	3,194	1,857	386	951	9,885,236

MISSOURI

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	4	0	2	2	1,825
February	1	0	0	1	580
March	7	1	4	2	7,263
April	5	1	2	2	2,006
May	3	0	1	2	1,995
June	2	0	1	1	629
July	1	0	0	1	288
October	3	0	0	3	5,915
November	1	0	0	1	2,500
Total	27	2	10	15	23,001

MISSOURI

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
March	2	0	0	2	2,066
July	1	0	0	1	288
October	3	0	0	3	5,915
November	1	0	0	1	2,500
Total	7	0	0	7	10,769

MISSOURI

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	4	0	2	2	1,825
February	1	0	0	1	580
March	5	1	4	0	5,197
April	5	1	2	2	2,006
May	3	0	1	2	1,995
June	2	0	1	1	629
Total	20	2	10	8	12,232

3 IMPORTANT REASONS FOR STANDARDIZING ON VICTOR WELDING AND CUTTING UNITS

VICTOR

Welding and Cutting Equipment Since 1910

REGULATORS for
acetylene
carbon dioxide
compressed air
hydrogen
liquid petroleum gases
medical gases
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TORCHES for
air gas
brazing
bunsen burner
descaling
flame cutting
flame hardening
hand cutting
heating
lead burning
machine cutting
preheating
soldering
surface hardening
welding

WELDING ROD for all uses

HARD-FACING alloys

BLASTING nozzles

PNEUMATIC regulator-filter-lubricator

CYLINDER MANIFOLDS for all types of cylinder gases

CYLINDER TRUCKS

Unlimited Opportunity for Expansion
All VICTOR welding and cutting units handle a wide variety of welding and cutting jobs. To expand them for new needs or special work—descaling, flame cutting, multi-flame heating, priming, etc.—just select the VICTOR tip, nozzle or attachment your job requires.

Low First Cost
When you use VICTOR you keep your investment in line with production . . . you buy only parts or attachments as needed . . . not a whole new outfit.

Low Operating Cost
Finally, because you can use the exact tip or nozzle needed for each job, you get better flame control, use less gas, and do better, faster work.

See for yourself why so many welders say it costs less to own and operate VICTOR. Ask your VICTOR dealer for a free demonstration TODAY.

WC-1 large capacity unit. Cuts metal up to 18" thick; handles all ordinary welding jobs.

WRITE today for descriptive literature and name of nearest distributor.

VICTOR EQUIPMENT COMPANY

3821 Santa Fe Ave. LOS ANGELES 58 — 844 Folsom Street SAN FRANCISCO 7 — 1318 W. Lake St. CHICAGO 7

EASTERN AND SOUTH CENTRAL NEBRASKA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	2	1	0	1	5,782
March	1	1	0	0	2,527
May	4	3	0	1	9,867
June	4	0	0	4	12,422
July	10	5	0	5	27,087
August	5	3	0	2	12,391
September	14	10	0	4	35,341
October	15	7	0	8	43,566
November	15	7	0	8	35,240
December	17	13	0	4	42,979
Total	87	50	0	37	227,202

EASTERN AND SOUTH CENTRAL NEBRASKA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	0	0	1	3,230
May	1	0	0	1	2,565
June	4	0	0	4	12,422
July	5	2	0	3	14,592
August	1	0	0	1	2,590
September	4	1	0	3	8,710
October	8	0	0	8	25,456
November	7	1	0	6	15,617
December	3	1	0	2	8,841
Total	34	5	0	29	94,023

EASTERN AND SOUTH CENTRAL NEBRASKA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	1	0	0	2,552
March	1	1	0	0	2,527
May	3	3	0	0	7,302
July	5	3	0	2	12,495
August	4	3	0	1	9,801
September	10	9	0	1	26,631
October	7	7	0	0	18,110
November	8	6	0	2	19,623
December	14	12	0	2	34,138
Total	53	45	0	8	133,179

WEST NEBRASKA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	2	1	1	0	9,615
March	3	1	1	1	13,665
April	2	1	0	1	7,604
May	8	2	2	4	37,962
June	7	1	1	5	27,927
July	7	2	0	5	31,686
August	13	4	1	8	59,032
September	15	5	1	9	68,165
October	8	2	2	4	37,074
November	8	3	0	5	36,699
December	11	4	1	6	52,064
Total	84	26	10	48	381,493

WEST NEBRASKA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	1	0	1	0	5,195
March	1	0	0	1	4,214
April	1	0	0	1	3,230
May	3	1	0	2	14,391
June	6	1	0	5	23,057
July	5	1	0	4	21,754
August	8	0	0	8	34,501
September	9	1	0	8	40,109
October	6	0	2	4	27,623
November	2	0	0	2	8,172
December	6	0	1	5	28,387
Total	48	4	4	40	210,633

WEST NEBRASKA

Developments Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	1	1	0	0	4,420
March	2	1	1	0	9,451
April	1	1	0	0	4,374
May	5	1	2	2	23,571
June	1	0	1	0	4,870
July	2	1	0	1	9,932
August	5	4	1	0	24,531
September	6	4	1	1	28,056
October	2	2	0	0	9,451
November	6	3	0	3	28,527
December	5	4	0	1	23,677
Total	36	22	6	8	170,860

WEST NEBRASKA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Chase	3	0	0	3	11,555
Cheyenne	18	4	3	11	86,432
Deuell	6	0	1	5	23,001
Dawes	4	0	0	4	10,776
Garden	4	0	0	4	15,419
Keith	2	0	0	2	7,884
Kimball	2	0	0	2	12,933
Morrill	4	0	0	4	19,221
Miscellaneous	5	0	0	5	23,412
Total	48	4	3	40	210,633

WEST NEBRASKA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Dorman area	8	7	1	0	38,006
Gurley area	5	4	0	1	22,468
Huntsman area	17	9	5	3	82,957
McLernon area	5	2	0	3	22,815
Sunol area	1	0	0	1	4,614
Total	36	22	6	8	170,860

COLORADO

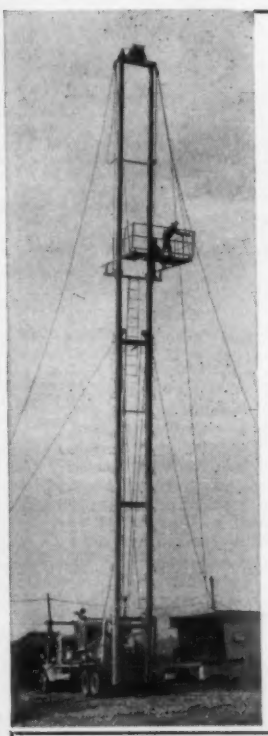
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	9	2	0	7	26,418
April	4	0	0	4	10,810
May	6	0	1	5	24,965
June	2	0	1	1	9,800
July	11	1	1	9	51,262
August	9	5	0	4	39,043
September	17	1	3	13	68,187
October	12	3	2	7	38,279
November	15	6	2	7	81,879
December	14	4	2	8	58,409
Total	99	22	12	65	409,052

COLORADO

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	6	0	0	6	15,953
April	4	0	0	4	10,810
May	4	0	0	4	13,189
June	1	0	0	1	6,064



S&R

Custom Built

PORTABLE TELESCOPING POLE MASTS —

This S & R double ladder mast is of heavy welded steel construction, and is fabricated of 10¾" pipe and 8⅝" pipe. Overall dimensions when erected 87 feet to crown support beam and 52' when telescoped in travelling position.

Approximate weight of the complete equipment is 12,000 lbs.

The complete assembly includes the (1) poles, (2) breakdown shaft assembly, (3) attached racking platform (which positions itself when poles are raised), (4) pole adjusting screws, (5) a sheave assembly to be mounted on truck or trailer for raising the poles, (6) and a four or five 24 inch sheave crown block for ⅞" line.

Available for truck, trailer, or skid mount.

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RAMSCO

BALL BEARING SWIVEL FITTINGS

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FOR LIQUIDS, GASES, PROPANE, HOT ASPHALT, STEAM, ACIDS AND OTHER CHEMICALS

For oil refineries, chemical plants, processing, pipelines, drilling, truck and tank car loading racks. Individual joints or multi-joint flexible steel hose, RAMSCO's patented method of packing offers proven dependability for continuous or occasional rotation service.

360° FREE ROTATION—1, 2 AND 3 PLANES

Your particular piping problems solved. You name it—we have it. Over 500 sizes, types, styles. Sizes: ⅛" to 14" low pressure; ⅛" to 6" high pressure. Corrosive service or steam fittings 1000 psi. and temp. to 750° F., asbestos or Teflon packed. Low pressure fittings to 1000 psi. and temp. to 225° F. High pressure fittings to 15,000 psi. and temp. to 225° F. Gear driven types available.

Send for complete catalog and prices. State kind of service, pressure, temperature, pipe size and indicate style below, threaded, flanged or weld ends.

RASMUSSEN MFG. CO.
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12305 INDUSTRIAL AVE.
HOLLYDALE, CALIFORNIA

Field—	Comp.	Oil	Gas	Dry	Footage
Elbing & E. & N.	30	23	0	7	75,187
El Dorado	96	81	0	15	234,950
Emmerman & NE.	7	5	0	2	24,771
Eulert	15	12	0	3	50,787
Eureka	42	32	0	10	81,967
Eveleigh	10	3	0	7	34,480
Fairport	35	26	0	9	116,284
Fairview	9	3	0	6	26,968
Fankhouser	8	5	0	3	15,420
Florence	6	2	0	4	14,407
Forest Hill & N.	36	25	0	11	117,939
Geneseo	22	14	0	8	72,111
Georob	14	14	0	0	39,084
Gorham	19	16	0	3	62,271
Greenwich & N.	8	6	0	2	23,606
Grow	8	4	0	4	29,464
Hall-Gurney	55	47	0	8	157,011
Hamilton	8	2	0	6	14,916
Hammeke	8	4	0	4	27,168
Hammer & N.	19	15	0	4	65,219
Harter	6	3	0	3	24,839
Hazel & S. & W.	17	10	0	7	62,993
Hazlett & N.	44	34	0	10	112,435
Heinz	7	5	0	2	23,088
Hildebrand & S.	6	5	0	1	22,926
Hoagland	7	6	0	1	11,362
Homer & SE.	10	7	0	3	25,213
Hufford	7	4	0	3	27,152
Huffstutter	36	35	0	1	127,161
Hugoton	379	0	373	6	1,013,750
Iuka	7	6	0	1	30,053
Kowalsky & NW. & S. & SW.	12	6	0	6	41,682
Kraft-Prusa & NE.	107	84	0	23	363,602
Krueger	10	10	0	0	35,565
Lamont	9	5	0	4	15,958
Lost Springs & SE.	20	13	0	7	47,227
Mansur	11	6	0	5	24,606
Marcotte	13	8	0	5	45,470
Max	21	13	0	8	85,925
Merle	6	5	0	1	21,580
Morel & E.	52	44	0	8	277,971
Mueller & W.	11	8	0	3	39,401
Nettie	6	5	0	1	21,191
Northampton	11	6	0	5	42,684
Novotny	8	7	0	1	28,094
Olsson & N. & NE. & NW.	16	9	0	7	51,313
Oscar	7	4	0	3	26,761
Otis-Albert	8	5	0	3	28,825
Padgett	17	15	0	2	50,439
Palco & SE.	15	9	0	6	55,038
Potwin & S.	24	17	0	7	68,031
Prosper & E.	6	0	0	6	19,481
Pundsack & N.	8	1	0	7	29,686
Quincy	17	6	0	11	26,939
Rattlesnake & N. & SW. & W.	10	5	0	5	39,005
Ray	7	7	0	0	25,258
Raymond	17	9	0	8	56,364
Rhodes	6	6	0	0	27,370
Rick	12	8	0	4	40,359
Ritz-Canton	10	7	0	3	30,116
Robbins	10	4	0	6	31,898
Robison	10	5	0	5	27,085
Rothgarn	12	3	0	9	43,529
Ruder	8	4	0	4	28,891
Russell & E. & NE.	18	10	0	8	56,170
Ryan	19	18	0	1	71,684
Seeley-Wick	6	5	0	1	11,689
Severy & N.	7	5	0	2	7,877
Silica & S. & SW.	70	44	0	26	236,241
Sittner	6	2	0	4	18,300
Smith-Denning	7	4	0	3	31,578
St. John Townsite	11	7	0	4	43,629
Stoltenberg	26	20	1	5	83,639
Sugar Loaf	7	6	0	1	24,848
Syms & E.	10	7	0	3	35,805
Teall & N. & NE. & NW.	13	9	0	4	50,417
Towanda	8	8	0	0	20,287
Trapp	96	68	0	28	327,287
Vacek	6	3	0	3	19,897
Virgil & N.	67	49	0	18	115,491
Walters	7	4	0	3	26,219
Weide	7	6	0	1	10,912
Wellington	10	8	0	2	36,847
Wherry & N.	8	6	0	2	27,267
White Cotton	8	4	0	4	23,715
Wiggins	7	3	0	4	12,289
Winterscheid	21	16	0	5	37,092
Zyba & SW.	6	3	0	3	23,225
Miscellaneous	646	325	10	311	1,962,089
Total	3,194	1,857	386	951	9,885,236

MISSOURI

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	4	0	2	2	1,825
February	1	0	0	1	580
March	7	1	4	2	7,263
April	5	1	2	2	2,006
May	3	0	1	2	1,995
June	2	0	1	1	629
July	1	0	0	1	288
October	3	0	0	3	5,915
November	1	0	0	1	2,500
Total	27	2	10	15	23,001

MISSOURI

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
March	2	0	0	2	2,066
July	1	0	0	1	288
October	3	0	0	3	5,915
November	1	0	0	1	2,500
Total	7	0	0	7	10,769

MISSOURI

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	4	0	2	2	1,825
February	1	0	0	1	580
March	5	1	4	0	5,197
April	5	1	2	2	2,006
May	3	0	1	2	1,995
June	2	0	1	1	629
Total	20	2	10	8	12,232

3 IMPORTANT REASONS FOR STANDARDIZING ON VICTOR WELDING AND CUTTING UNITS

VICTOR

Welding and Cutting Equipment Since 1910

REGULATORS for
acetylene
carbon dioxide
compressed air
hydrogen
liquid petroleum gases
medical gases
oxygen

TORCHES for
air gas
brazing
bunsen burner
descaling
flame cutting
flame hardening
hand cutting
heating
lead burning
machine cutting
preheating
soldering
surface hardening
welding

WELDING ROD
for all uses

HARD-FACING
alloys

BLASTING nozzles

PNEUMATIC
regulator-filter-lubricator

CYLINDER MANIFOLDS for
all types of cylinder gases

CYLINDER TRUCKS

Unlimited Opportunity for Expansion

All VICTOR welding and cutting units handle a wide variety of welding and cutting jobs. To expand them for new needs or special work—descaling, flame cutting, multi-flame heating, priming, etc.—just select the VICTOR tip, nozzle or attachment your job requires.

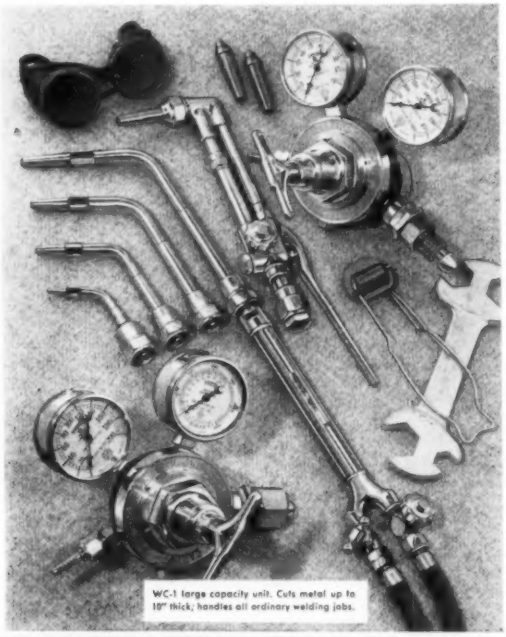
Low First Cost

When you use VICTOR you keep your investment in line with production . . . you buy only parts or attachments as needed . . . not a whole new outfit.

Low Operating Cost

Finally, because you can use the exact tip or nozzle needed for each job, you get better flame control, use less gas, and do better, faster work.

See for yourself why so many welders say it costs less to own and operate VICTOR. Ask your VICTOR dealer for a free demonstration TODAY.



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EASTERN AND SOUTH CENTRAL NEBRASKA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	2	1	0	1	5,782
March	1	1	0	0	2,527
May	4	3	0	1	9,867
June	4	0	0	4	12,422
July	10	5	0	5	27,087
August	5	3	0	2	12,391
September	14	10	0	4	35,341
October	15	7	0	8	43,566
November	15	7	0	8	35,240
December	17	13	0	4	42,979
Total	87	50	0	37	227,202

EASTERN AND SOUTH CENTRAL NEBRASKA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	0	0	1	3,230
May	1	0	0	1	2,565
June	4	0	0	4	12,422
July	5	2	0	3	14,592
August	1	0	0	1	2,590
September	4	1	0	3	8,710
October	8	0	0	8	25,456
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August	4	3	0	1	9,801
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Total Completions by Months

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WEST NEBRASKA

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COLORADO

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October	12	3	2	7	38,279
November	15	6	2	7	81,879
December	14	4	2	8	58,409
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COLORADO

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
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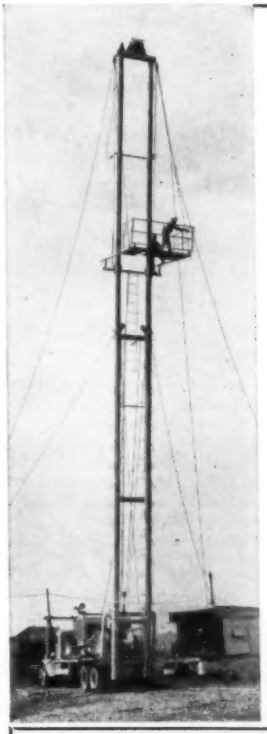
April	4	0	0	4	10,810
May	4	0	0	4	13,189
June	1	0	0	1	6,064



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S&R TOOL AND SUPPLY CO. S&R HOUSTON, TEXAS

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Send for complete catalog and prices. State kind of service, pressure, temperature, pipe size and indicate style below, threaded, flanged or weld ends.

RASMUSSEN MFG. CO.
RAMSCO
12305 INDUSTRIAL AVE.
HOLLYDALE, CALIFORNIA

Month--	Comp.	Oil	Gas	Dry	Footage
July	7	1	0	6	34,159
August	4	2	0	2	21,308
September	14	0	1	13	47,589
October	3	0	0	3	14,110
November	7	2	1	4	41,634
December	6	1	1	4	31,783
Total	56	6	3	47	236,599

COLORADO

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	3	2	0	1	10,465
May	2	0	1	1	11,776
June	1	0	1	0	3,736
July	4	0	1	3	17,103
August	5	3	0	2	17,735
September	3	1	2	0	20,598
October	9	3	2	4	24,169
November	8	4	1	3	40,245
December	8	3	1	4	26,626
Total	43	16	9	18	172,453

COLORADO

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
La Plata	2	0	1	1	11,456
Logan	12	4	0	8	64,368
Larimer	4	0	1	3	3,951
Mesa	2	0	0	2	5,035
Morgan	9	1	1	7	44,054
Moffat	3	0	0	3	13,138
Ouray	2	0	0	2	7,056
Park	2	0	0	2	7,572
Pueblo	2	0	0	2	4,862
Phillips	2	0	0	2	7,911
Routt	3	0	0	3	4,848
Washington	4	0	0	4	20,524
Weld	2	1	0	1	9,436
Miscellaneous	7	0	0	7	32,388
Total	56	6	3	47	236,599

COLORADO

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Chrome	8	5	0	3	5,020
Florence Field	2	0	0	2	6,562
Lee	3	0	1	2	16,588
Lee Pool	4	1	0	3	22,216
Maudlin Gulch	3	3	0	0	19,545
Merino	5	5	0	0	25,550
Piceance Creek	8	0	4	4	24,637
Miscellaneous	10	2	4	4	52,340
Total	43	16	9	18	172,453

WYOMING

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	63	44	0	19	318,394
February	40	25	3	12	213,626
March	30	22	2	6	141,809
April	41	32	0	9	206,557
May	38	27	1	10	181,017
June	57	36	2	19	275,612
July	59	25	0	34	275,916
August	59	28	2	29	268,898
September	60	38	4	18	319,402
October	54	27	1	26	274,831
November	56	24	1	31	226,669
December	58	37	2	19	291,455
Total	615	365	18	232	2,994,186

WYOMING

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	13	2	0	11	64,236
February	6	0	0	6	21,120
March	3	0	0	3	6,964
April	4	2	0	2	24,009
May	4	1	0	3	25,196
June	9	2	0	7	51,260
July	16	3	0	13	79,284
August	13	4	0	9	60,041
September	14	4	0	10	74,231
October	15	2	0	13	97,358
November	16	2	0	14	55,764
December	9	0	1	8	36,334
Total	122	22	1	99	595,797

WYOMING

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	50	42	0	8	254,158
February	34	25	3	6	192,506
March	27	22	2	3	134,845
April	37	30	0	7	182,548
May	34	26	1	7	155,821
June	48	34	2	12	224,352
July	43	22	0	21	196,632
August	46	24	2	20	208,857
September	46	34	4	8	245,171
October	39	25	1	13	177,473
November	40	22	1	17	170,905
December	49	37	1	11	255,121
Total	493	343	17	133	2,398,389

WYOMING

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Albany	3	0	0	3	2,696
Big Horn	7	1	0	6	19,511
Carbon	5	0	0	5	13,203
Converse	16	7	0	9	108,220
Crook	12	0	0	12	39,308
Fremont	10	2	1	7	52,648
Hot Springs	5	0	0	5	14,408
Johnson	14	7	0	7	101,830
Laramie	2	0	0	2	5,448
Natrona	19	1	0	18	91,207
Niobrara	5	1	0	4	27,023
Park	2	0	0	2	14,268
Washakie	2	1	0	1	17,104
Weston	11	2	0	9	67,567
Uinta	2	0	0	2	3,014
Miscellaneous	7	0	0	7	18,342
Total	122	22	1	99	595,797

WYOMING

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Big Muddy	7	6	0	1	33,638
Borie	3	2	0	1	26,246
Church Buttes	5	0	4	1	66,624
Clareton Area	3	1	0	2	19,696
Deer Creek	3	0	0	3	17,197
Elk Basin	3	2	0	1	19,267
Fiddler Creek	89	83	0	6	457,729
Frannie	27	26	0	1	102,496
Garland	3	1	0	2	9,651
Glenrock Area	12	5	0	7	91,031
Grass Creek	6	6	0	0	10,103
Hamilton Dome	5	4	0	1	17,618

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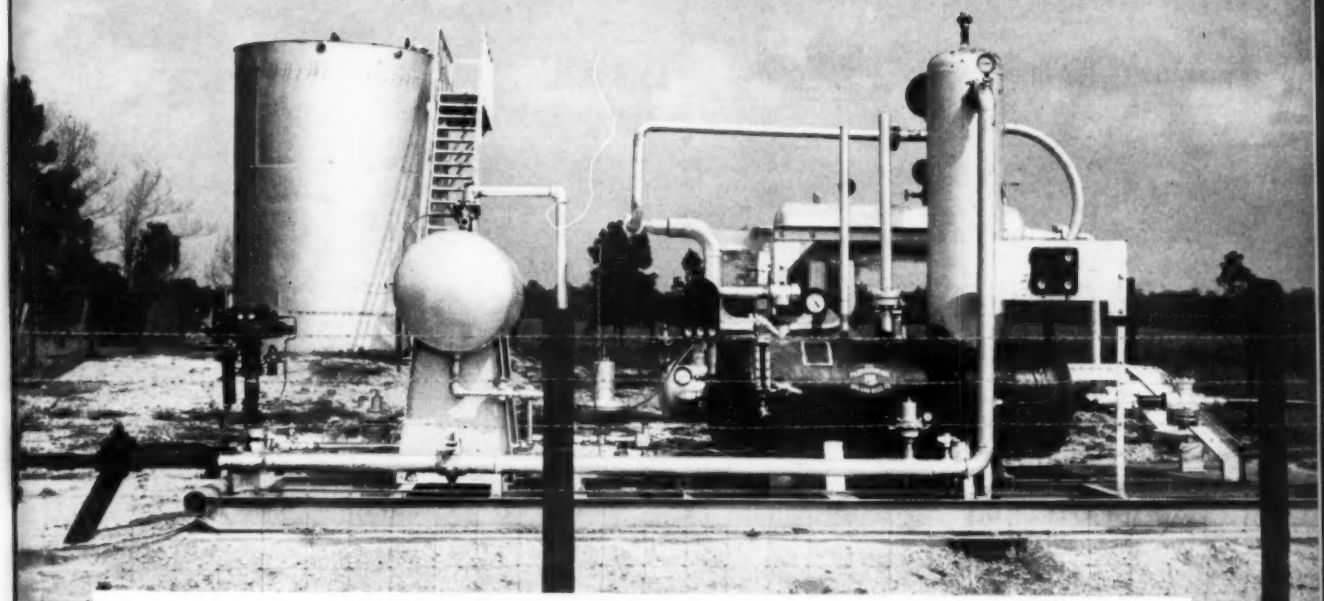
PARKERSBURG HYRECO PROCESSING UNIT VS CONVENTIONAL HEATER-SEPARATOR HOOK-UP

HYRECO RECOVERS 21% MORE CONDENSATE



Data provided by this direct test of the old versus the new in condensate recovery methods further substantiates the revenue-increasing performance of the Parkersburg Hyreco Processing Unit. Tests were made under identical operating conditions on the same well, by alternately flowing it through the Hyreco and then through the heater-separator hook-up.

When flowing through conventional hook-up stock tank condensate recovered was 30.9 bbls. per mmcf of flow with separator pressure at 600 psi and temperature at 67 deg. F.

When flowed through the HYRECO, stock tank condensate recovery jumped to 37.4 bbls. per mmcf of flow with high recovery separator pressure at 600 psi and temperature at 16 deg. F.

The Parkersburg Hyreco Well Head Processing Unit is a revenue producing investment, that pays out quickly and produces extra profits every day it is in operation. It will pay you to get the facts about Hyreco . . . ask your Parkersburg Representative or write for bulletins.

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FOR LONG LIFE AND ECONOMY

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Undersurface Lubricant

HYDE CORPORATION
Truck Trailer Manufacturers
FORT WORTH, TEXAS

November 4, 1950

Manufacturers of

Mr. John T. Heaton, President
Champion Products, Inc.
Stephenville, Texas

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As a trailer manufacturer, we want to find new products and more efficient methods for the advancement of the trucking industry and are satisfied that your excellent product improves the efficiency of a motor. By efficiency we mean that the truck operator can get better performance with CHAMPION Q-X.

We maintain that if a truck governs your income -- it is good business to improve its efficiency. That is the reason we say Hyde Trailers are "Lighter in Weight--Easier Pulling--More Economical".

As the builder of Hyde trailers and as a user of CHAMPION Q-X UNDERSURFACE LUBRICANT, we are glad to recommend it to the trucking industry and operators of motor equipment.

Yours very truly,
HYDE CORPORATION

C. L. Courtney
Sales Manager

CLC:ml

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Local Rep.—Mr. Harry Lewis.
All American Trading Co., Managua, Nicaragua, C. A.

Manufactured in Houston, Texas

Field—	Comp.	Oil	Gas	Dry	Footage
Lake Creek	3	3	0	0	11,073
Lightning Creek	4	0	1	3	16,253
Little Buck Creek	4	2	0	2	21,583
Lodgepole	3	1	0	2	20,161
Meadow Creek	20	19	0	1	120,444
Mush Creek	39	19	0	20	164,634
North Meadow Creek	48	46	0	2	216,641
North Mush Cr.	5	1	0	4	22,302
North Skull Cr.	4	2	0	2	12,885
Notches	4	4	0	0	11,394
NW Lake Creek	4	4	0	0	14,503
Pilot Butte	3	3	0	0	19,179
Sage Spring Cr.	9	5	0	4	65,082
Salt Creek	4	4	0	0	7,500
Sand Draw	4	3	1	0	29,888
Skull Creek	46	25	2	19	156,656
S. Cole Creek	3	3	0	0	25,139
S. Douglas	3	0	1	2	5,310
S. Glenrock	4	4	0	0	23,740
SW Mush Creek	3	1	0	2	14,985
Sussex	36	29	0	7	212,393
W. Mush Creek	12	6	0	6	61,183
Miscellaneous	62	23	8	31	274,159
Total	493	343	17	133	2,398,389

MONTANA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	15	6	2	7	30,626
February	1	1	0	0	3,062
March	8	6	0	2	14,469
April	19	11	2	6	44,954
May	19	11	4	4	38,289
June	21	12	0	9	41,743
July	27	11	3	13	68,431
August	42	27	2	13	98,729
September	37	19	1	17	75,527
October	27	18	2	7	66,867
November	32	16	2	14	79,699
December	22	16	2	4	58,896
Total	270	154	20	96	621,292

MONTANA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	4	0	0	4	7,277
March	2	0	0	2	2,960
April	1	0	0	1	1,961
May	1	1	0	0	2,251
June	4	0	0	4	11,151
July	7	0	0	7	22,844
August	8	0	0	8	31,360
September	6	0	0	6	17,987
October	4	0	0	4	18,248
November	9	1	0	8	31,759
December	3	1	0	2	15,881
Total	49	3	0	46	163,679

MONTANA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	11	6	2	3	23,349
February	1	1	0	0	3,062
March	6	6	0	0	11,509
April	18	11	2	5	42,993
May	18	10	4	4	36,038
June	17	12	0	5	30,592
July	20	11	3	6	45,587
August	34	27	2	5	67,369
September	31	19	1	11	57,540
October	23	18	2	3	48,619
November	23	15	2	6	47,940
December	19	15	2	2	43,015
Total	221	151	20	50	457,613

MONTANA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Big Horn	3	0	0	3	20,836
Blaine	3	0	0	3	6,775
Carbon	2	0	0	2	2,467
Carter	4	0	0	4	16,818
Chouteau	2	0	0	2	5,429
Fergus	6	0	0	6	9,966
Garfield	2	0	0	2	6,931
Liberty	2	0	0	2	7,823
Petroleum	2	0	0	2	4,158
Rosebud	3	2	0	1	17,464
Teton	5	1	0	4	13,657
Toole	4	0	0	4	9,141
Miscellaneous	11	0	0	11	42,214
Total	49	3	0	46	163,679

MONTANA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Big Wall	8	8	0	0	24,519
Bowes	2	2	0	0	6,935
Cat Creek	11	4	0	7	17,245
Cut Bank	25	11	11	3	71,234
Cut Bank	4	0	3	1	10,341
Jack Creek	3	0	0	3	3,029
Kevin Sunburst	99	79	5	15	157,657
Melstone	3	1	0	2	13,292
Midway Area	6	5	0	1	11,590
NW Elk Basin	4	3	0	1	18,005
Pondera	29	23	0	6	55,156
Pondera	14	10	0	4	29,204
Whitlash	4	2	1	1	10,215
Womans Pocket	2	0	0	2	4,237
Miscellaneous	7	3	0	4	24,954
Total	221	151	20	50	457,613

UTAH

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
March	1	1	0	0	4,330
June	3	2	0	1	12,519
July	3	1	1	1	12,389
August	1	0	0	1	3,682
September	3	1	0	2	21,764
October	5	0	0	5	14,108
December	1	0	0	1	387
Total	17	5	1	11	69,179

UTAH

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
June	1	0	0	1	4,020
July	3	1	1	1	12,389
August	1	0	0	1	3,682
September	2	0	0	2	12,371
October	5	0	0	5	14,108
December	1	0	0	1	387
Total	13	1	1	11	46,957

UTAH

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
March	1	1	0	0	4,330
June	2	2	0	0	8,499
September	1	1	0	0	9,393
Total	4	4	0	0	22,222

UTAH

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Box Elder	1	0	0	1	7,321
Duchesne	1	0	0	1	2,240
Grand	3	0	0	3	4,584
Iron	1	0	0	1	4,020
Millard	2	0	0	2	7,061
Summit	1	0	0	1	5,050
Uintah	4	1	1	2	16,701
Total	13	1	1	11	46,957

UTAH

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Ashley Valley	3	3	0	0	12,829
Roosevelt	1	1	0	0	9,393
Total	4	4	0	0	22,222

IDAHO

Wildcat Completions by Months*

Month—	Comp.	Oil	Gas	Dry	Footage
April	3	0	0	3	7,108
October	1	0	0	1	5,597
December	1	0	0	1	2,230
Total	5	0	0	5	14,935

*No development completions.

IDAHO

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Owyhee	3	0	0	3	7,108
Cassia	1	0	0	1	2,230
Bonneville	1	0	0	1	5,597
Total	5	0	0	5	14,935

SOUTH DAKOTA

Wildcat Completions by Months*

Month—	Comp.	Oil	Gas	Dry	Footage
March	1	0	0	1	5,759
June	2	0	0	2	2,635
July	1	0	0	1	2,155
August	1	0	0	1	400
September	5	0	0	5	13,916
December	2	0	0	2	5,618
Total	12	0	0	12	30,483

*No development completions.

SOUTH DAKOTA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Butte	2	0	0	2	4,152
Lawrence	1	0	0	1	3,143
Meade	9	0	0	9	23,188
Total	12	0	0	12	30,483

NORTH DAKOTA

Wildcat Completions by Months*

Month—	Comp.	Oil	Gas	Dry	Footage
October	2	0	0	2	14,589
November	1	0	0	1	12,526
Total	3	0	0	3	27,115

*No development completions.

NORTH DAKOTA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Emmons	1	0	0	1	5,556
McLean	1	0	0	1	9,033
Mercer	1	0	0	1	12,526
Total	3	0	0	3	27,115

ARIZONA

Wildcat Completions* by Months

Month—	Comp.	Oil	Gas	Dry	Footage
October	1	0	0	1	5,766
Total	1	0	0	1	5,766

*No development completions.

NEVADA

Wildcat Completions* by Months

Month—	Comp.	Oil	Gas	Dry	Footage
November	1	0	0	1	10,314
Total	1	0	0	1	10,314

*No development completions.

WASHINGTON

Wildcat Completions* by Months

Month—	Comp.	Oil	Gas	Dry	Footage
March	1	0	0	1	6,688
September	1	0	0	1	9,344
November	1	0	0	1	4,330
Total	3	0	0	3	20,362

*No development completions.

CALIFORNIA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Fotage
January	139	96	2	41	680,306
February	130	86	3	41	569,443
March	124	94	2	28	555,024
April	145	102	2	41	624,160
May	140	98	2	40	653,682
June	151	108	3	40	618,168
July	176	117	3	56	682,901
August	164	108	5	51	715,300
September	152	99	10	43	681,956
October	164	110	9	45	692,342
November	177	134	7	36	761,864
December	167	126	3	38	731,082
Total	1,829	*1,278	51	†500	7,966,228

*Incl. 6 distillate wells. †Incl. 1 service well.

CALIFORNIA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	36	2	1	33	144,382
February	37	1	1	35	116,077
March	27	4	0	23	100,426
April	39	2	0	37	155,336
May	35	3	0	32	143,174
June	40	7	1	32	181,423
July	42	4	0	38	136,609
August	41	3	1	37	153,978
September	39	5	0	34	181,649
October	42	3	1	38	156,374
November	37	6	0	31	154,133
December	35	4	0	31	139,115
Total	450	44	5	401	1,762,676

CALIFORNIA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	103	94	1	8	535,924
February	93	85	2	6	453,366
March	97	90	2	5	454,598
April	106	100	2	4	468,824
May	105	95	2	8	510,508
June	111	101	2	8	436,745
July	134	113	3	18	546,292
August	123	105	4	14	561,322
September	113	94	10	9	500,307
October	122	107	8	7	535,968
November	140	128	7	5	607,731
December	132	122	3	7	591,967
Total	1,379	1,234	46	99	6,203,552

CALIFORNIA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Contra Costa	6	0	0	6	26,781
Fresno	27	3	1	23	181,045
Kern	147	16	2	129	438,641
Kings	14	1	1	12	67,418
Los Angeles	73	14	0	59	317,093
Merced	3	0	0	3	16,775
Monterey	8	0	0	8	29,591
Orange	7	0	0	7	38,745
Riverside	5	0	0	5	5,420
Sacramento	3	0	1	2	15,465
San Benito	10	1	0	9	33,929
San Bernardino	6	0	0	6	16,471
San Luis Obispo	45	5	0	40	164,334
San Mateo	3	0	0	3	13,317
Santa Barbara	33	1	0	32	148,422
Santa Cruz	4	0	0	4	10,038
Solano	5	0	0	5	18,941
Tehama	3	0	0	3	9,702
Tulare	5	0	0	5	9,674
Ventura	29	3	0	26	143,696
Yolo	3	0	0	3	14,433
Miscellaneous	11	0	0	11	42,745
Total	450	44	5	401	1,762,676

FLINT STEEL CORPORATION
TULSA, OKLAHOMA

CALIFORNIA

Development Completions by Fields

LOS ANGELES BASIN—

Field—	Comp.	Oil	Gas	Dry	Footage
Athens-Rosecrans	2	2	0	0	13,637
Brea-Olinda	9	8	0	1	52,631
Coyote, East	11	11	0	0	64,504
Coyote, West	16	16	0	0	66,083
Dominguez	11	9	0	2	90,326
East Los Angeles	5	5	0	0	41,779
Huntington Beach	76	73	1	2	412,255
Inglewood	30	30	0	0	105,043
Long Beach	69	57	0	12	248,505
Montebello	10	9	0	1	40,373
Richfield	19	19	0	0	86,967
Sansinena	10	10	0	0	45,370
Santa Fe Springs	12	10	0	2	67,480
Seal Beach	12	11	0	1	78,867
Torrance	4	4	0	0	20,665
West Newport	6	6	0	0	23,800
Wilmington	189	188	1	0	702,507
Miscellaneous	2	2	0	0	12,294
Total	493	470	2	21	2,173,086

CALIFORNIA

Development Completions by Fields

SAN JOAQUIN VALLEY—

Field—	Comp.	Oil	Gas	Dry	Footage
Belridge, South	44	41	0	3	46,891
Buena Vista	15	13	1	1	57,920
Coalinga (E., W., and Nose)	12	9	0	3	34,897
Coles Levee, N.	7	7	0	0	67,044
Edison	46	40	0	6	163,938
Elk Hills	47	47	0	0	299,228
Fruitvale	25	24	1	0	100,048
Gosford, East	7	7	0	0	55,826
Guijarral Hills	24	22	0	2	211,239
Jacalitos	8	8	0	0	30,466
Kern River	8	8	0	0	9,019
Lost Hills	8	7	0	1	35,316
Midway-Sunset	38	36	0	2	110,413
Morales	12	10	0	2	39,291
Mountain View	15	14	0	1	84,789
Paloma	13	12	0	1	141,236
Raisin City	23	19	1	3	126,428
Rio Vista	28	0	25	3	128,616
Russell Ranch	22	18	0	4	76,901
South Cuyama	123	119	1	3	557,292
Tejon Hills	43	33	1	9	31,643
Miscellaneous	70	47	12	11	230,587
Total	638	541	42	55	2,639,028

CALIFORNIA

Development Completions by Fields

COASTAL DISTRICT—

Field—	Comp.	Oil	Gas	Dry	Footage
Aliso Canyon	10	9	0	1	54,959
Arroyo Grande	7	6	0	1	26,999
Bardsdale	9	7	0	2	52,313
Cat Canyon, W.	11	10	0	1	71,318
Del Valle	7	5	1	1	52,656
Newhall-Potrero	12	11	0	1	105,354
Ojai	6	5	0	1	17,802
Placerita Canyon	71	64	1	6	113,665
Rincon	6	6	0	0	37,785
San Miguelito	10	10	0	0	93,513
South Mountain	15	15	0	0	76,733
Ventura Avenue	46	46	0	0	530,640
Miscellaneous	38	29	0	9	157,701
Total	248	223	2	23	1,391,438
Total Calif.	1,379	1,234	46	99	6,203,552

MICHIGAN

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	49	23	0	26	129,596
February	64	28	2	34	157,163
March	51	25	0	26	135,164
April	63	29	2	32	143,765
May	95	41	1	53	191,643
June	67	26	1	40	136,421
July	112	35	5	72	249,865
August	77	26	0	51	172,105
September	96	26	7	63	232,296
October	85	37	6	42	223,026
November	65	20	4	41	157,548
December	73	32	2	39	189,877
Total	897	348	30	*519	2,118,469

*Incl. 60 service wells.

MICHIGAN

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	19	2	0	17	42,882
February	31	2	1	28	67,526
March	17	0	0	17	41,962
April	25	3	2	20	63,296
May	21	4	1	16	50,388
June	20	3	0	17	36,945
July	44	1	0	43	102,588
August	27	2	0	25	62,388
September	46	3	0	43	104,726
October	27	7	1	19	69,450
November	31	1	1	29	74,030
December	30	1	0	29	80,634
Total	338	29	6	303	796,815

MICHIGAN

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	30	21	0	9	86,714
February	33	26	1	6	89,637
March	34	25	0	9	93,202
April	38	26	0	12	80,469
May	74	37	0	37	141,255
June	47	23	1	23	99,476
July	68	34	5	29	147,277
August	50	24	0	26	109,717
September	50	23	7	20	127,570
October	58	30	5	23	153,576
November	34	19	3	12	83,518
December	43	31	2	10	109,243
Total	559	319	24	216	1,321,654

MICHIGAN

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Allegan	83	7	0	76	117,116
Antrim	4	0	1	3	8,240
Arenac	9	0	0	9	27,161
Barry	3	0	0	3	5,796
Bay	12	3	0	9	38,364
Clare	7	0	0	7	27,262
Clinton	3	0	0	3	6,661
Gladwin	8	3	0	5	32,744
Huron	3	0	0	3	7,638
Ionia	5	1	0	4	14,344
Isabella	14	1	0	13	48,558
Kalamazoo	4	0	0	4	5,233
Kalkaska	5	1	0	4	16,089
Kent	11	1	0	10	25,773
Lake	3	0	0	3	9,806
Livingston	4	0	0	4	7,263
Mason	7	1	0	6	15,897
Mecosta	18	0	0	18	48,618
Montcalm	11	0	0	11	32,968
Missaukee	7	0	1	6	24,213
Muskegon	12	2	1	9	24,491
Newaygo	15	2	0	13	37,510
Oceana	19	0	1	18	42,564
Ogemaw	4	1	0	3	16,461
Osceola	15	1	1	13	52,680
Ottawa	7	0	0	7	13,568
Roscommon	3	2	0	1	12,775
Saginaw	3	1	0	2	8,463
Tuscola	2	0	1	1	4,635
Van Buren	23	2	0	21	28,096
Miscellaneous	14	0	0	14	35,828
Total	338	29	6	303	796,815

MICHIGAN

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Adams, all pools	26	18	0	8	89,057
Akron, South	12	11	0	1	34,651
Bard	5	4	0	1	19,755
Beaver Creek	10	10	0	0	43,221
Beaverton, S.	4	3	0	1	15,690
Bentley	6	5	0	1	21,550
Billings	6	5	0	1	21,392
Birch Run	4	0	0	4	7,241
Bishop	7	5	0	2	15,703
Bloomingdale	26	10	0	16	32,618
Cannon Creek	21	0	16	5	62,006
Clear Lake	8	7	0	1	11,021
Coldwater	5	2	0	3	19,049
Cranberry Lake	12	0	0	12	16,143
Elmwood	4	2	0	2	11,152
Enterprise	10	9	0	1	45,946
Gibson	8	7	0	1	17,263
Hope	14	8	0	6	24,575
Isabella	4	2	1	1	12,883
Kawkawlin	27	26	0	1	77,721
Kellogg	4	3	0	1	6,419
Monterey	5	0	0	5	7,792
Mt. Pleasant	5	4	0	1	17,949
Norwich, East	7	7	0	0	31,446
Paris	15	14	0	1	44,600
Pentwater	13	11	0	2	25,807
Pinconning	5	3	0	2	11,900
Pullman	7	2	0	5	8,700
Pullman, East	30	20	0	10	34,567
Reed City (G.S.W.)	40	0	0	40	48,560
Rose City	6	5	0	1	26,551
Salem	5	4	0	1	8,264
St. Helen	29	26	1	2	125,248
Stony Lake	17	14	0	3	28,841
Trowbridge	10	7	0	3	13,681
Walker	13	12	0	1	23,791
Wayland	24	21	0	3	42,676
White River	4	0	0	4	8,308
Winterfield	7	0	0	7	9,559
Miscellaneous	94	32	6	56	198,358
Total	559	319	24	216	1,321,654

ILLINOIS

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	177	94	0	83	366,267
February	131	63	0	68	269,117
March	156	67	1	88	346,781
April	193	78	0	115	443,298
May	240	116	2	122	518,303
June	273	131	2	140	619,501
July	339	148	1	190	761,924
August	295	133	2	160	637,335
September	308	149	1	158	693,790
October	271	119	1	151	603,549
November	243	90	4	149	565,336
December	197	92	3	102	480,812
Total	2,823	1,280	17	*1,526	6,311,013

*Incl. 15 service wells.

ILLINOIS

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	53	8	0	45	94,898
February	49	6	0	43	92,005
March	51	9	0	42	106,808
April	62	4	0	58	148,930
May	70	9	1	60	154,277
June	85	20	0	65	200,567
July	91	6	0	85	220,117
August	78	9	0	69	171,113
September	78	11	1	66	181,516
October	60	8	0	52	141,056
November	87	10	2	75	199,094
December	46	4	2	40	123,576
Total	810	104	6	700	1,833,957

ILLINOIS

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	124	86	0	38	271,369
February	82	57	0	25	177,112
March	105	58	1	46	239,973
April	131	74	0	57	294,368
May	170	107	1	62	364,026
June	188	111	2	75	418,934
July	248	142	2	105	541,807
August	217	124	2	91	466,222
September	230	138	0	92	512,274
October	211	111	1	99	467,493
November	156	80	2	74	366,242
December	151	88	1	62	357,236
Total	2,013	1,176	11	826	4,477,056

ILLINOIS

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Bond	15	3	0	12	18,349
Christian	6	0	0	6	11,015
Clark	19	0	0	19	35,106
Clay	37	6	0	31	105,561
Clinton	38	5	1	32	54,977
Coles	10	0	0	10	8,570
Crawford	4	0	0	4	4,536
Edgar	50	1	3	46	46,810
Edwards	22	7	0	15	66,443
Effingham	24	3	0	21	51,323
Fayette	29	2	0	27	51,627
Franklin	19	3	0	16	57,029
Gallatin	31	5	1	25	82,731
Hamilton	42	11	0	31	140,223
Jasper	22	0	0	22	64,154
Jefferson	23	3	0	20	66,390
Lawrence	43	4	0	39	91,653
Macon	5	0	0	5	10,961
Macoupin	10	0	0	10	7,657
Madison	41	4	0	37	33,386
Marion	17	1	0	16	41,190
Montgomery	18	0	0	18	22,346
Moultrie	5	0	0	5	10,776
Perry	8	0	0	8	18,209
Richland	48	9	1	38	152,061
St. Clair	5	0	0	5	6,270
Saline	16	3	0	13	42,388
Shelby	10	0	0	10	23,531
Wabash	30	7	0	23	79,618
Washington	9	0	0	9	18,515
Wayne	51	9	0	42	167,188
White	58	17	0	41	183,004
Miscellaneous	45	1	0	44	60,360
Total	810	104	6	700	1,833,957

ILLINOIS

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Aden, South	13	10	0	3	44,526
Albion Consolidated	44	34	1	9	106,966
Albion, East	8	5	0	3	24,821
Allendale	40	10	0	30	77,427
Assumption, N.	12	8	0	4	29,289
Barnhill	4	2	0	2	14,045
Beaver Creek, South	24	14	0	10	27,327
Bellair	5	0	0	5	4,691
Benton, North	12	11	0	1	32,316
Birds	4	2	0	2	3,753
Blairsville	27	20	0	7	92,978
Bogota, South	28	21	0	7	86,729
Bone Gap, S.	7	5	0	2	20,933
Bonpas	15	11	0	4	47,443
Bungay Consolidated	4	1	0	3	13,755
Calhoun Consolidated	5	1	0	4	16,100
Calhoun, East	12	4	0	8	39,483
Cantrell	14	12	0	2	45,448
Cantrell, South	10	7	0	3	32,225
Carlyle	10	5	0	5	10,900
Carlyle, North	55	36	0	19	65,561
Centerville, E.	12	8	0	4	37,971
Clay City-Noble Consolidated	136	81	0	55	423,249
Concord East Consolidated	4	2	0	2	11,311
Cottonwood	4	0	1	3	9,958
Dale-Hoodville Consolidated	15	10	0	5	46,810
Divide, East	7	5	0	2	19,543
Dudley	31	21	0	10	16,180
Dupo	5	0	0	5	2,959
Elbridge	20	16	0	4	20,288
Ellery, West	13	10	0	3	43,577
Enfield	4	0	0	4	13,759
Fairfield	16	10	0	6	52,662
Fairman	17	14	0	3	24,964
Flannigan	6	3	0	3	20,004
Flat Rock	8	1	0	7	9,523
Frogtown	4	0	0	4	4,401
Goldengate Consolidated	33	21	0	12	111,590
Grandview	4	0	1	3	2,360
Half Moon	5	3	0	2	16,683
Herald	41	30	1	10	98,759
Herald, East	5	3	0	2	14,066
Inclose	6	0	1	5	2,576
Ingraham	9	8	0	1	27,178
Inman West Consolidated	45	31	0	14	118,367
Inman East Consolidated	16	12	0	4	38,807
Iola, South	10	7	0	3	25,920
Johnson, North	5	2	0	3	4,097
Johnson, South	8	3	0	5	4,953
Johnsonville, S.	4	1	0	3	12,903
Johnsonville, W.	4	1	0	3	12,268
Junction	4	0	0	4	7,505
Keyesport	6	4	0	2	7,173
King	9	3	0	6	25,496
Lancaster, E.	5	2	0	3	8,973
Lancaster, S.	5	4	0	1	12,663
Lawrence	110	48	0	62	200,260
Livingston	39	11	0	28	23,689
Livingston, S.	17	2	0	15	9,769
Long Branch	6	0	0	6	16,782
Louden	170	132	0	38	270,372
Main	26	11	0	15	26,235
Martinsville	10	6	0	4	11,613
Maud Consol.	21	12	0	9	46,550
Maud North Consolidated	68	53	0	15	172,211
Maunie, North	13	10	0	3	35,750
Maunie, South	32	26	0	6	79,173
Mt. Carmel	8	4	0	4	15,499

Delivery From Stock (While Supply Lasts)

INTERNATIONAL 6-VOLT

OIL-TESTING CENTRIFUGES

DESCRIPTION

	Model F	Model G
Height, cover closed	12½ in.	12 in.
Diameter of guard bowl	15¾ in.	13¼ in.
Diameter of base	8¼ in.	8¼ in.
Net weight	27 lbs.	24 lbs.
Shipping weight	40 lbs.	32 lbs.
Packing case	18x18x15 in.	15x14x15 in.

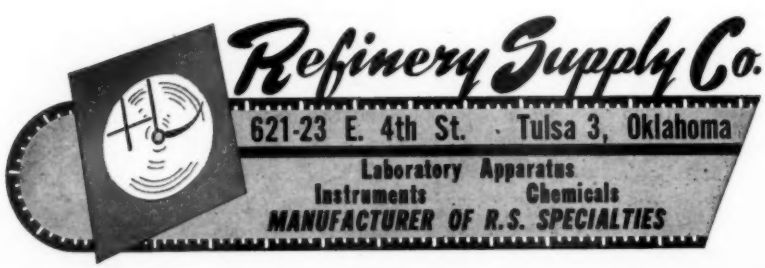
Series-type motor; will operate from any 6-volt storage battery. Enclosing guard bowl of 1/16-inch-thick steel with hinged cast-metal locking cover gives protection against both accident and dirt. Solid cast-iron base for stability, with 4 drilled holes for mounting bolts. Sealed bearings of the semi-lubricated type require only a few drops of oil occasionally. Supplied with 3 feet of heavy weather-proof cord and an armored cord connector. The heads are easily removable and are secured by a nut to the tapered shaft. Finished inside and outside with a heavy coating of dark gray lacquer.

The Model F has a 2-place bronze head with attached rings for holding removable aluminum cups and cushions to accommodate the regular 100-ml. A.S.T.M. pear-shaped glass tube for making the Standard Method D-96-35 B. S. & W. Test. The rotating diameter from tip to tip of the glass tubes is 14¼ inches, which requires that the centrifuge have a minimum speed of 1,590 r.p.m., with the cover closed, according to the A.S.T.M. formula. The specially designed motor, which takes less than 9 amperes at full speed, drives the head and cups at approximately 1,900 r.p.m. with 6 volts at the motor terminals and 1,600 r.p.m. with 4.9 volts at the motor terminals.

3905

3900

The Model G is equipped with 2-place flywheel-type weighted head with attached rings for holding removable bronze shields and cushions to accommodate the regular 15-ml. graduated 100% glass oil tubes for making the A.P.I. Code No. 25 B. S. & W. Test. The rotating diameter from tip to tip of the glass tubes is 11¼ inches. The special motor, which takes only 7.5 amperes at full speed, drives the head and shields at approximately 2,400 r.p.m. with 6 volts at the motor terminals and 2,050 r.p.m. with 4.9 volts at the motor terminals.



Field—	Comp.	Oil	Gas	Dry	Footage
New Harmony-Keensburg Consolidated	44	31	0	13	114,007
Omaha	14	6	0	8	19,452
Oskaloosa	42	33	0	9	111,486
Panama	8	1	2	5	7,202
Parkersburg, S.	10	4	0	6	16,985
Parkersburg, W.	7	3	0	4	22,977
Patoka, West	6	6	0	0	8,332
Phillipstown Consolidated	23	11	0	12	58,328
Raccoon Lake	11	10	0	1	18,862
Ritter	5	1	0	4	16,918
Rochester	4	1	0	3	7,280
Roland	12	7	0	5	31,359
Ruark	14	7	0	7	25,050
Rural Hill	39	25	0	14	125,849
Sailor Springs Consolidated	29	20	0	9	80,154
Siggins	4	2	0	2	2,619
Stokes-Brownsville	8	4	0	4	22,602
Storms	12	9	0	3	29,740
Sumpter, South	11	7	0	4	30,184
Thompsonville, East	6	3	0	3	19,368
Tonti	4	3	0	1	8,529
Walpole	21	13	0	8	66,563
Warrenton-Borton	8	3	0	5	3,668
Weaver	25	20	0	5	51,022
Westfield	21	7	1	13	9,117
Westfield, East	6	2	0	4	2,988
Whittington	14	6	0	8	39,622
Whittington, S.	11	9	0	2	29,235
Williams	6	5	0	1	15,793
Woburn	5	3	0	2	4,801
Woburn, South	22	18	0	4	22,470
Miscellaneous	162	46	3	113	400,379
Total	2,013	1,176	11	826	4,477,056

INDIANA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	103	38	8	57	185,337
February	71	28	3	40	111,519
March	100	37	3	60	174,483
April	126	51	1	74	225,770
May	144	50	2	92	241,244
June	151	63	1	87	255,808
July	190	81	9	100	319,069
August	145	60	3	82	257,406
September	166	55	12	99	278,629
October	140	47	4	89	240,052
November	112	33	4	75	198,689
December	86	33	1	52	153,710
Total	1,534	576	51	*907	2,641,716

*Incl. one service well.

INDIANA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	33	5	0	28	61,471
February	27	4	0	23	48,523
March	40	4	0	36	73,381
April	62	5	1	56	114,986
May	52	4	0	48	85,763
June	54	7	0	47	96,177
July	72	10	2	60	125,092
August	52	9	0	43	95,040
September	58	5	1	52	99,106
October	51	10	0	41	91,355
November	41	6	1	34	75,781
December	28	5	1	22	49,752
Total	570	74	6	490	1,016,427

INDIANA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	70	33	8	29	123,866
February	44	24	3	17	62,996
March	60	33	3	24	101,102
April	64	46	0	18	110,784
May	92	46	2	44	155,481
June	97	56	1	40	159,631
July	118	71	7	40	193,977
August	93	51	3	39	162,366
September	108	50	11	47	179,523
October	89	37	4	48	148,697
November	71	27	3	41	122,908
December	58	28	0	30	103,958
Total	964	502	45	417	1,625,289

INDIANA

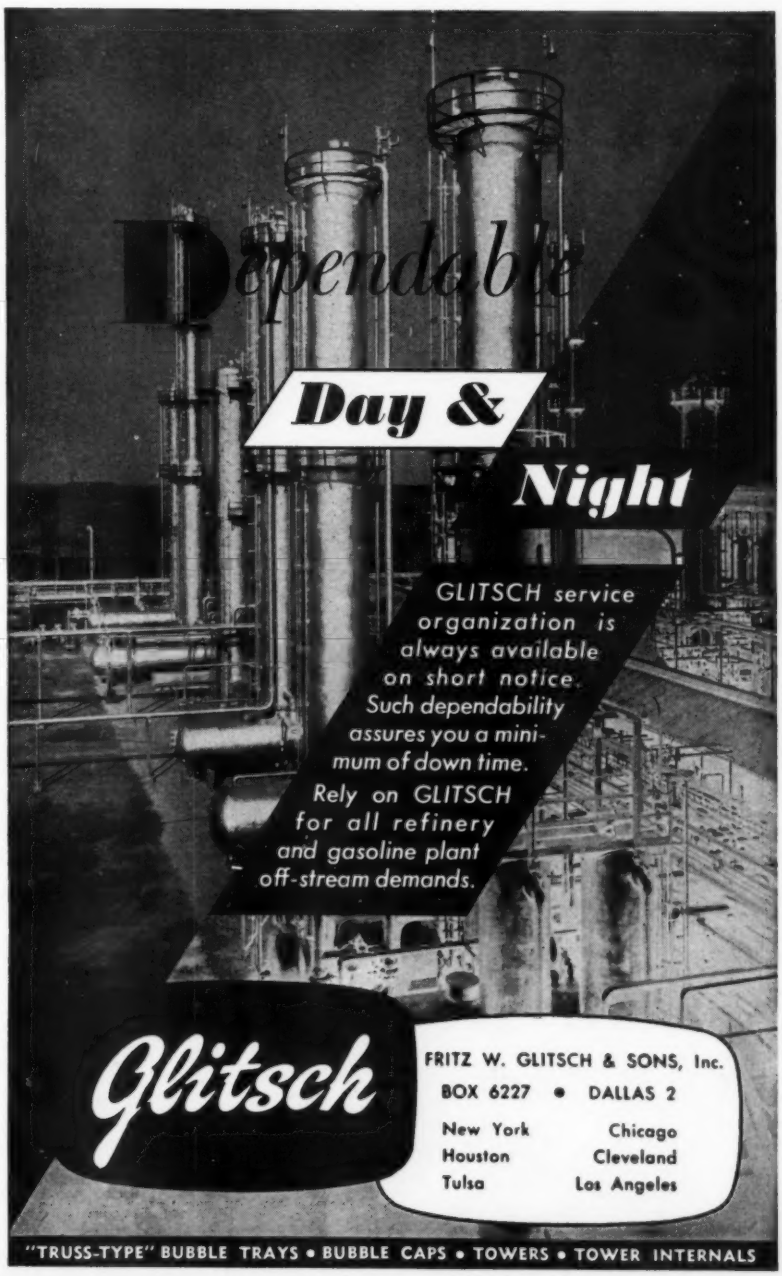
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Clay	9	0	0	9	15,226
Daviess	66	4	0	62	80,656
Dubois	15	2	1	12	15,058
Gibson	98	17	1	80	200,234
Greene	14	0	0	14	25,366
Jackson	4	0	0	4	1,785
Knox	51	9	0	42	79,060
Marshall	6	0	1	5	4,344
Martin	8	0	1	7	9,141
Owen	6	0	0	6	8,018
Parke	7	0	0	7	10,637
Perry	8	1	0	7	8,191
Pike	18	6	0	12	32,471
Posey	80	24	0	56	209,212
Spencer	14	1	0	13	18,349
Sullivan	48	3	0	45	83,994
Vanderburgh	29	4	0	25	64,587
Vigo	26	1	0	25	50,675
Warrick	28	2	0	26	52,202
Miscellaneous	35	0	2	33	47,221
Total	570	74	6	490	1,016,427

INDIANA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Barrett-Mitchell North	7	3	0	4	13,274
Black Hawk	5	4	0	1	9,604
Bufkin	22	12	0	10	31,687
Caborn	14	10	0	4	25,366
Cannelburg	4	2	0	2	3,068
Claybank	19	7	5	7	26,429
Columbia	4	3	0	1	5,208
Darmstadt	6	1	0	5	15,312
Denny	7	2	0	5	5,729
Evansville	8	4	0	4	9,181
Fairbanks	9	7	0	2	21,388
Farmersville	7	3	0	4	12,680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Field—	Comp.	Oil	Gas	Dry	Footage
Foots Pond	7	5	0	2	17,925
Ford South	38	34	0	4	77,762
Franklin West	5	2	0	3	9,039
Grafton South	8	5	0	3	20,863
Griffin	6	2	0	4	16,927
Horton	4	2	0	2	4,190
Housler	12	7	0	5	23,157
Jasper	8	4	0	4	6,192
King	5	2	0	3	11,755
Lamott	6	3	0	3	15,031
Loogootee	10	0	3	7	12,424
Loogootee N.	7	0	3	4	10,055
Monroe City	6	1	0	5	10,560
Monroe City, N.	14	6	0	8	22,084
Montgomery	11	5	0	6	13,378
Mt Carmel	7	2	0	5	15,556
Mt. Vernon	28	21	0	7	62,790
Mumford	17	10	0	7	37,126
New Harmony, S.	4	4	0	0	8,107
New Harmony, E.	17	14	0	3	37,184
New Harmony-Keensburg	15	8	0	7	39,724
New Haven	4	2	0	2	9,637
Oaktown	11	7	1	3	17,212
Oliver, S.	10	6	0	4	28,564
Owensville	4	3	0	1	9,005
Owensville, E.	29	23	0	6	63,640
Owensville, N.	10	4	0	6	23,179
Owensville, S.	4	2	0	2	10,336
Palestine Grove	7	4	0	3	6,699
Patoka, E.	16	11	0	5	29,277
Patton, E.	4	2	0	2	6,987
Pelzer	19	11	0	8	31,664
Peru	14	9	0	5	12,923
Peru, E.	4	0	0	4	3,600
Piroque	9	8	0	1	23,782
Plainville	58	51	4	3	46,215
Prairie Creek	14	2	0	12	19,941
Princeton, N.	12	4	0	8	23,548
Spencer	20	13	0	7	57,024
Springfield	13	6	0	7	33,673
Spring Hill	6	5	0	1	10,344
State Line	4	1	0	3	6,118
Stooker, E.	7	3	0	4	17,194
Sullivan	6	0	0	6	6,495
Sweezer	5	3	0	2	4,861
Terminal	6	4	0	2	14,943
Trenton	59	19	22	18	60,900
Troy	6	2	0	4	5,105
Union-Bowman	117	61	6	50	163,087
Westphalia	11	4	0	7	11,103
Miscellaneous	128	37	1	90	217,478
Total	964	502	45	417	1,625,289

WESTERN KENTUCKY

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	66	37	0	29	96,483
February	34	15	0	19	39,652
March	50	29	1	20	68,697
April	87	49	0	38	136,227
May	57	29	2	26	88,289
June	80	42	1	37	126,712
July	105	52	1	52	155,819
August	87	40	1	46	152,693
September	105	49	1	55	186,397
October	93	44	0	49	156,187
November	72	37	0	35	117,526
December	68	37	0	31	132,602
Total	904	460	7	*437	1,457,284

*Incl. 3 service wells.

WESTERN KENTUCKY

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	11	3	0	8	22,526
February	6	1	0	5	7,484
March	9	0	1	8	12,496
April	24	4	0	20	49,859
May	11	1	0	10	22,295
June	19	3	0	16	38,894
July	16	3	0	13	33,460
August	25	3	0	22	54,643
September	25	2	0	23	51,371
October	18	0	0	18	35,712
November	13	1	0	12	24,596
December	21	3	0	18	49,221
Total	198	24	1	173	402,557

WESTERN KENTUCKY

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	55	34	0	21	73,957
February	28	14	0	14	32,168
March	41	29	0	12	56,201
April	63	45	0	18	86,368
May	46	28	2	16	65,994
June	61	39	1	21	87,818
July	89	49	1	39	122,359
August	62	37	1	24	98,050
September	80	47	1	32	135,026
October	75	44	0	31	120,475
November	59	36	0	23	92,930
December	47	34	0	13	83,381
Total	706	436	6	264	1,054,727

WESTERN KENTUCKY

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Breckenridge	1	0	0	1	1,880
Daviess	37	1	1	35	58,390
Hancock	11	0	0	11	12,830
Henderson	63	11	0	52	147,619
Hopkins	2	0	0	2	3,170
Logan	1	0	0	1	1,102
McLean	23	3	0	20	49,039
Muhlenberg	3	1	0	2	5,729
Ohio	18	2	0	16	19,290
Union	20	0	0	20	53,323
Webster	19	6	0	13	50,185
Total	198	24	1	173	402,557

WESTERN KENTUCKY

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Aetnaville	27	13	0	14	20,607
Beach Grove, East	3	1	0	2	6,275
Bells Run	41	14	0	27	40,631
Birk City	26	17	1	8	35,535
Buford	3	3	0	0	1,971
Caney Mound	9	8	0	1	21,222
Caney Mound, East	8	6	0	2	21,086
Corydon, S.	10	7	0	3	23,100
Diamond Springs	6	1	0	5	8,611
Easton	7	4	1	2	3,246
Fordsville	14	7	0	7	8,351
Glenville	29	21	0	8	49,035
Griffith	63	43	2	18	73,459
Guffie	59	48	0	11	111,501
Haynesville	3	0	0	3	3,937
Herbert	9	5	0	4	5,830
House Bridge	3	0	0	3	6,845
Huntsville	11	9	0	2	4,386
Jones	6	0	2	4	6,148
Lyonia	3	0	0	3	2,734
Morganfield	3	3	0	0	6,537
Morganfield, S.	82	74	0	8	169,506
Niagara	11	6	0	5	8,042
Pellville	17	9	0	8	16,243
Pleasant Ridge	15	7	0	8	13,645
Poole	24	11	0	13	46,291
Poole, West	10	9	0	1	22,476
Ralph Cons.	4	1	0	3	2,765
Red Hill	3	2	0	1	3,140
Reed, East	34	30	0	4	41,763
Smith Mills	3	2	0	1	7,643
Taffy	3	1	0	2	2,895
Tidden, East	8	4	0	4	17,530
Tunnel Hill	8	7	0	1	18,385
Utica	3	0	0	3	4,992
Waitman	11	4	0	7	12,775
Whitesville	10	4	0	6	10,101
Zion, North	45	36	0	9	89,266
Zion, North-Bethel	5	5	0	0	10,808
Miscellaneous	67	14	0	53	95,414
Total	706	436	6	264	1,054,727

EASTERN KENTUCKY

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	17	5	8	4	38,879
February	16	8	6	2	32,261
March	20	0	16	4	63,949
April	18	1	14	3	47,876
May	16	2	12	2	49,385
June	26	8	14	4	62,243
July	14	2	9	3	40,429
August	27	0	22	5	80,235
September	21	6	13	2	46,909
October	23	12	8	3	45,025
November	18	10	6	2	33,558
December	30	2	22	6	77,502
Total	246	56	150	40	618,251

EASTERN KENTUCKY

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	0	0	1	2,132
February	1	0	0	1	5,220
March	1	0	0	1	5,684
April	2	0	0	2	5,385
June	3	1	0	2	5,860
July	3	1	0	2	9,105
August	1	0	0	1	2,167
September	1	0	0	1	2,397
November	1	0	0	1	2,296
December	2	0	0	2	4,063
Total	16	2	0	14	44,309

EASTERN KENTUCKY

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	16	5	8	3	36,747
February	15	8	6	1	27,041
March	19	0	16	3	58,265
April	16	1	14	1	42,491
May	16	2	12	2	49,385
June	23	7	14	2	56,383
July	11	1	9	1	31,324
August	26	0	22	4	78,068
September	20	6	13	1	44,512
October	23	12	8	3	45,025
November	17	10	6	1	31,262
December	28	2	22	4	73,439
Total	230	54	150	26	573,942

EASTERN KENTUCKY

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Breathitt	2	1	0	1	3,544
Carter	2	0	0	2	7,547
Elliott	1	1	0	0	896
Fleming	1	0	0	1	2,132
Jackson	1	0	0	1	1,321
Johnson	1	0	0	1	5,684
Knox	2	0	0	2	7,664
Lawrence	1	0	0	1	2,397
Lewis	1	0	0	1	1,545
Magoffin	1	0	0	1	2,296
Morgan	2	0	0	2	4,063
Pike	1	0	0	1	5,220
Total	16	2	0	14	44,309

EASTERN KENTUCKY

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Big Sandy	171	3	149	19	503,351
Big Sinking	6	6	0	0	5,212
Isonville	12	12	0	0	12,987
Ida May	3	3	0	0	3,347
Martha	6	6	0	0	5,411
Mine Fork	3	3	0	0	3,744
Pilot (East)	18	16	0	2	18,328
Springfork	3	0	0	3	6,985
Van Cleve	4	4	0	0	6,289
Miscellaneous	4	1	1	2	8,288
Total	230	54	150	26	573,942

TENNESSEE

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	4	0	0	4	6,721
July	1	0	0	1	840
September	3	1	0	2	2,850
Total	8	1	0	7	10,411

TENNESSEE

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	3	0	0	3	5,291
July	1	0	0	1	840
September	2	1	0	1	2,430
Total	6	1	0	5	8,561

TENNESSEE

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	1	0	0	1	1,430
September	1	0	0	1	420
Total	2	0	0	2	1,850

OHIO

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	84	31	23	30	190,726
February	74	21	24	29	165,109

Month—	Comp.	Oil	Gas	Dry	Footage
March	65	22	15	28	151,927
April	84	30	23	31	182,496
May	75	32	22	21	156,950
June	92	29	28	35	188,551
July	113	42	20	51	220,102
August	75	29	17	29	147,857
September	109	36	34	39	232,442
October	101	28	26	47	205,646
November	93	32	22	39	190,913
December	62	15	24	23	139,245
Total	1,027	347	278	*402	2,171,964

*Incl. 46 service wells.

OHIO

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	3	1	0	2	9,098
February	0	0	0	0	0
March	4	0	1	3	14,600
April	1	0	0	1	1,990
May	0	0	0	0	0
June	1	0	0	1	4,227
July	1	0	1	0	3,235
August	1	0	0	1	3,392
September	3	1	0	2	8,548
October	4	0	0	4	17,900
November	1	0	0	1	3,195
December	0	0	0	0	0
Total	19	2	2	15	66,185

OHIO

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	81	30	23	28	181,628
February	74	21	24	29	165,109
March	61	22	14	25	137,327
April	83	30	23	30	180,506
May	75	32	22	21	156,950
June	91	29	28	34	184,324
July	112	42	19	51	216,867
August	74	29	17	28	144,465
September	106	35	34	37	223,894
October	97	28	26	43	187,746
November	92	32	22	38	187,718
December	62	15	24	23	139,245
Total	1,008	345	276	387	2,105,779

OHIO

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Athens	2	0	1	1	6,096
Carroll	2	0	0	2	11,502
Coshocton	1	0	0	1	3,195
Erie	1	0	0	1	2,400
Hardin	1	0	0	1	1,995
Harrison	1	0	0	1	1,990
Hocking	1	1	0	0	2,670
Holmes	1	0	0	1	3,742
Huron	1	0	0	1	4,103
Lorain	1	1	0	0	2,201
Muskingum	1	0	0	1	3,392
Pike	1	0	0	1	4,227
Scioto	1	0	0	1	2,243
Summit	3	0	1	2	11,458
Tuscarawas	1	0	0	1	4,971
Total	19	2	2	15	66,185

OHIO

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Ashland	252	82	73	97	401,543
Brush Creek	13	2	6	5	50,982
Cambridge	190	55	60	75	272,310
Eastern	15	5	4	6	21,277
Lancaster	164	61	34	69	454,926
Mt. Vernon	216	100	28	88	583,212
Sandyville	36	30	27	9	170,241
Stewart	113	36	44	33	139,170
Upper Sandusky	9	4	0	5	12,118
Total	1,008	345	276	387	2,105,779

WEST VIRGINIA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	45	8	26	11	121,370
February	49	16	26	7	114,693
March	63	21	26	16	136,690
April	41	10	20	11	107,412
May	61	13	35	13	152,921
June	62	18	35	9	160,714
July	51	6	40	5	145,547
August	78	10	50	18	211,246
September	47	6	33	8	132,173
October	54	12	28	14	146,694
November	51	8	32	11	145,383
December	50	4	33	13	148,412
Total	652	132	384	136	1,723,255

WEST VIRGINIA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	3	0	2	1	18,034
February	1	0	0	1	4,815
March	5	0	1	4	26,842
April	3	0	1	2	16,265
May	5	0	3	2	26,324
June	5	0	3	2	26,239
July	2	0	1	1	11,498
August	5	0	3	2	24,491
September	5	0	4	1	26,589
October	3	0	1	2	15,712
November	2	0	1	1	9,960
December	4	0	3	1	20,601
Total	43	0	23	20	227,370

WEST VIRGINIA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	42	8	24	10	103,336
February	48	16	26	6	109,878
March	58	21	25	12	109,848
April	38	10	19	9	91,147
May	56	13	32	11	126,597
June	57	18	32	7	134,475
July	49	6	39	4	134,049
August	73	10	47	16	186,755
September	42	6	29	7	105,584
October	51	12	27	12	130,982
November	49	8	31	10	135,423
December	46	4	30	12	127,811
Total	609	132	361	116	1,495,885

VIRGINIA

Development Completions* by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	0	1	0	5,700
Total	1	0	1	0	5,700

*No wildcat completions.

MARYLAND

Wildcat Completions by Months*

Month—	Comp.	Oil	Gas	Dry	Footage
October	3	0	1	2	13,024
Total	3	0	1	2	13,024

*No development completions.

PENNSYLVANIA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	113	55	15	43	192,951
February	109	52	14	43	186,384
March	120	57	22	41	211,294
April	106	49	18	39	185,980
May	125	62	14	49	223,107
June	164	75	28	61	286,414
July	159	85	14	60	254,404
August	159	74	23	62	276,631
September	130	66	10	54	224,697
October	155	73	23	59	268,192
November	138	64	18	56	234,888
December	103	51	11	41	169,181
Total	1,581	763	210	608	2,714,123

PENNSYLVANIA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
May	2	0	0	2	16,788
July	1	0	1	0	4,058
October	1	0	0	1	8,032
Total	4	0	1	3	28,878

PENNSYLVANIA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	113	55	15	43	192,951
February	109	52	14	43	186,384
March	120	57	22	41	211,294
April	106	49	18	39	185,980
May	123	62	14	47	206,319
June	164	75	28	61	286,414
July	158	85	13	60	250,346
August	159	74	23	62	276,631
September	130	66	10	54	224,697
October	154	73	23	58	260,160
November	138	64	18	56	234,888
December	103	51	11	41	169,181
Total	1,577	763	209	605	2,685,245

NEW YORK

Development Completions* by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	60	30	0	30	86,000
February	47	24	0	23	68,000
March	36	19	0	17	52,000
April	56	28	0	28	80,000
May	62	32	0	30	88,000
June	75	41	0	34	108,000
July	66	34	0	32	95,000
August	45	23	0	22	65,000
September	40	20	0	20	58,000
October	77	39	0	38	110,000
November	52	26	0	26	75,000
December	41	21	0	20	59,000
Total	657	337	0	†320	944,000

*No wildcat completions. †Incl. 320 service wells.

ALBERTA, CANADA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	42	27	2	13	187,186
February	56	39	1	16	234,619
March	80	53	1	26	327,790
April	75	61	4	10	285,974
May	85	70	7	8	309,322
June	108	87	5	16	414,230
July	91	72	3	16	344,772
August	106	75	5	26	402,234
September	89	68	5	16	350,265
October	88	66	5	17	364,682
November	115	82	1	32	451,682
December	82	59	2	21	340,292
Total	1,017	759	41	217	4,013,048

ALBERTA, CANADA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	13	0	2	11	59,008
February	17	2	1	14	77,415
March	27	1	1	25	126,384
April	11	0	2	9	50,582
May	8	1	1	6	36,885
June	18	2	2	14	86,376
July	14	1		13	68,839
August	29	2	3	24	135,472
September	25	7	4	14	116,401
October	21	2	5	14	108,108
November	27	4	1	22	141,581
December	20	3	1	16	93,600
Total	230	25	23	182	1,100,651

ALBERTA, CANADA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	29	27		2	128,178
February	39	37		2	157,204
March	53	52		1	201,406
April	64	61	2	1	235,392
May	77	69	6	2	272,437
June	90	85	3	2	327,854
July	77	71	3	3	275,933
August	77	73	2	2	266,762
September	64	61	1	2	233,864
October	67	64		3	256,574
November	88	78		10	310,101
December	62	56	1	5	246,692
Total	787	734	18	35	2,912,397

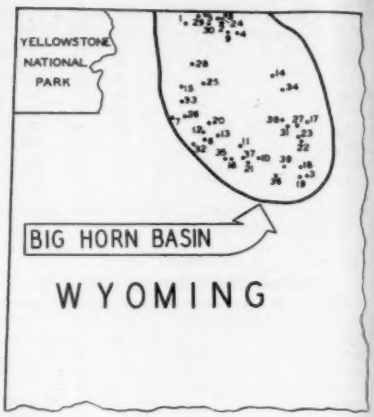
BOOKS

UTILIZATION OF TEXAS SERPENTINE. By Virgil E. Barnes, D. A. Shock, and W. A. Cunningham. Published by Bureau of Economic Geology, University of Texas, Austin. 52 pp. 60 cents.

This pamphlet has to do with possible commercial use of a Texas mineral commodity, and is illustrated by 19 text figures, 17 tables, and a geologic map of the Coal Creek serpentine mass, which is located in Blanco and Gillespie counties. Possible uses reviewed are for producing compounds that can be used for the production of magnesium metal and magnesium compounds as well as direct uses such as for refractories, adsorbent material, fertilizer, ion exchange material, and rock.

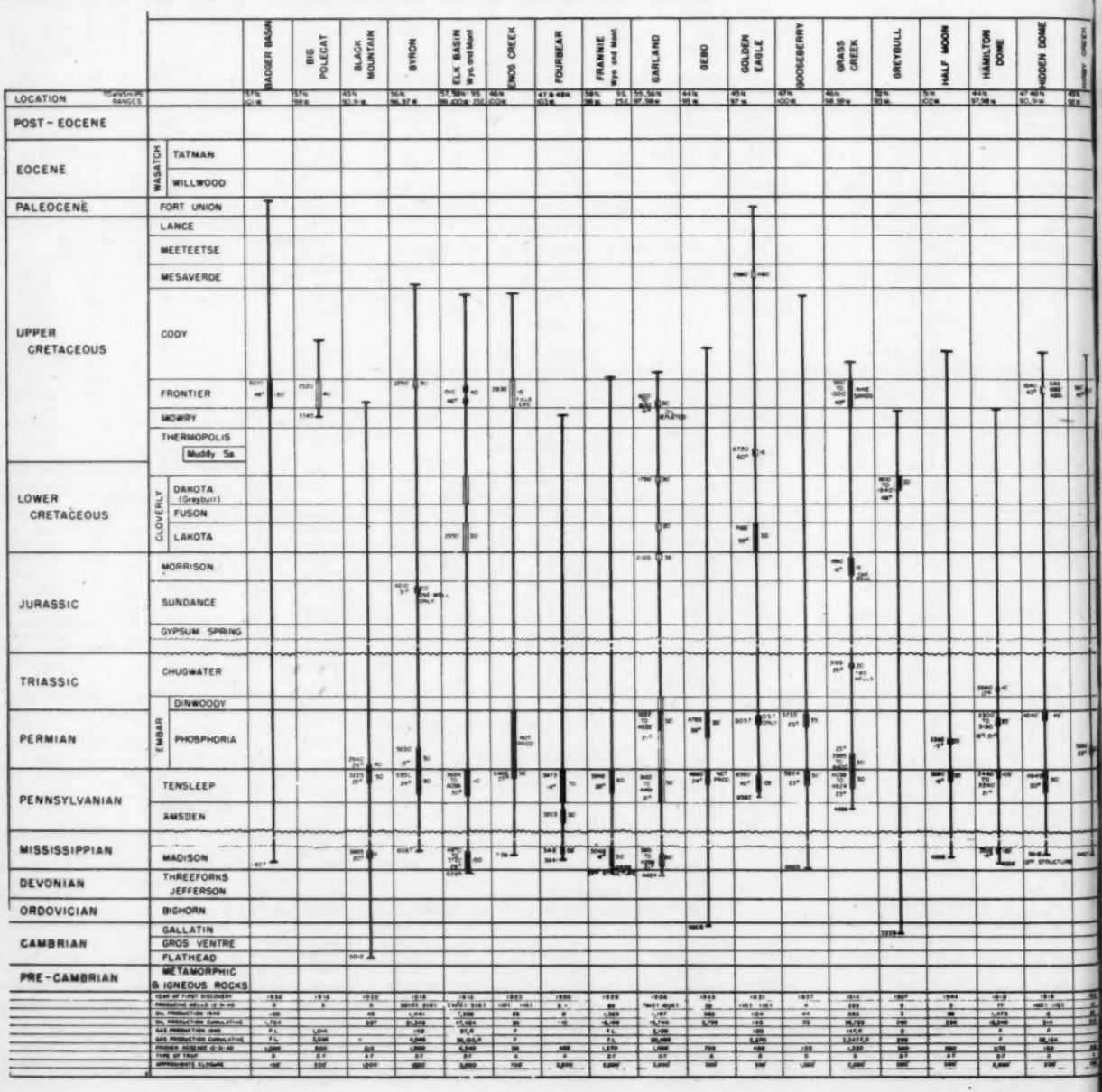
Wyoming Correlations

Penetration Chart for Big Horn Basin



LEGEND FOR MAP

1. Badger Basin
2. Big Polecat
   Little Polecat
3. Black Mountain
4. Byron
5. Elk Basin
6. Enos Creek
7. Fourbear
8. Frannie
9. Garland
10. Gebo
11. Golden Eagle
12. Gooseberry
13. Grass Creek
    Little Grass Creek
14. Greybull
15. Half Moon
16. Hamilton Dome
17. Hidden Dome
18. Kirby Creek
19. Lake Creek
20. Little Buffalo Basin
21. Little Sand Draw
22. Murphy Dome
23. Neiber
24. North Danker
25. Oregon Basin
26. Pitchfork
27. Sand Creek
28. Shoshone
29. Silver Tip
30. South Elk Basin
31. South Fork
32. South Sunshine
33. Spring Creek
34. Torchlight
35. Wagonhound
36. Warm Springs
37. Waugh
38. Worland
39. Zimmerman Butte



EXPLANATION

Approximate geologic horizon exposed on surface of crest of structure

Oil producing zone
Depth (average or minimum and maximum)
Gravity of oil
(average thickness shown on the right)

Gas producing zone

Oil and gas producing zone

Gas and condensate producing zone

Section missing

Deepest penetration

*Some wells start in Hillard overthrust on Wasatch. One to several oil or gas zones.

Fields and data are as of December 31, 1949, except for a few 1950 new zones and total depths.

Producing wells include active wells only. (O) = Oil. (G) = Gas.

Proven acreage is usually of the largest pool.

Oil production is in thousands of barrels.

Gas production is in millions of cubic feet.

C = Condensate. Amount not available.

Abbreviations Under Gas Production

F = Gas is used in field
L = Gas is blown or lost
R = Gas is used in recycling, repressuring or injection
S = Gas from outside sources is stored and withdrawn

Abbreviations Under Type of Trap

A = Anticline
AF = Faulted anticline
D = Dome
DF = Faulted dome
D(2) = Double dome
M = Monocline
T = Terrace
MU = Monoclinal unconformity
FT = Fault trap
N = Nose

Compiled by a Nomenclature Committee of the Wyoming Geological Association. Complete set of charts for Wyoming may be purchased through Petroleum Information, Inc., Box 2452, Casper, at $2.00 per set.

Information obtained from records of the Conservation Division, U. S. Geological Survey, State of Wyoming, Oil Companies, and other sources believed to be reliable.

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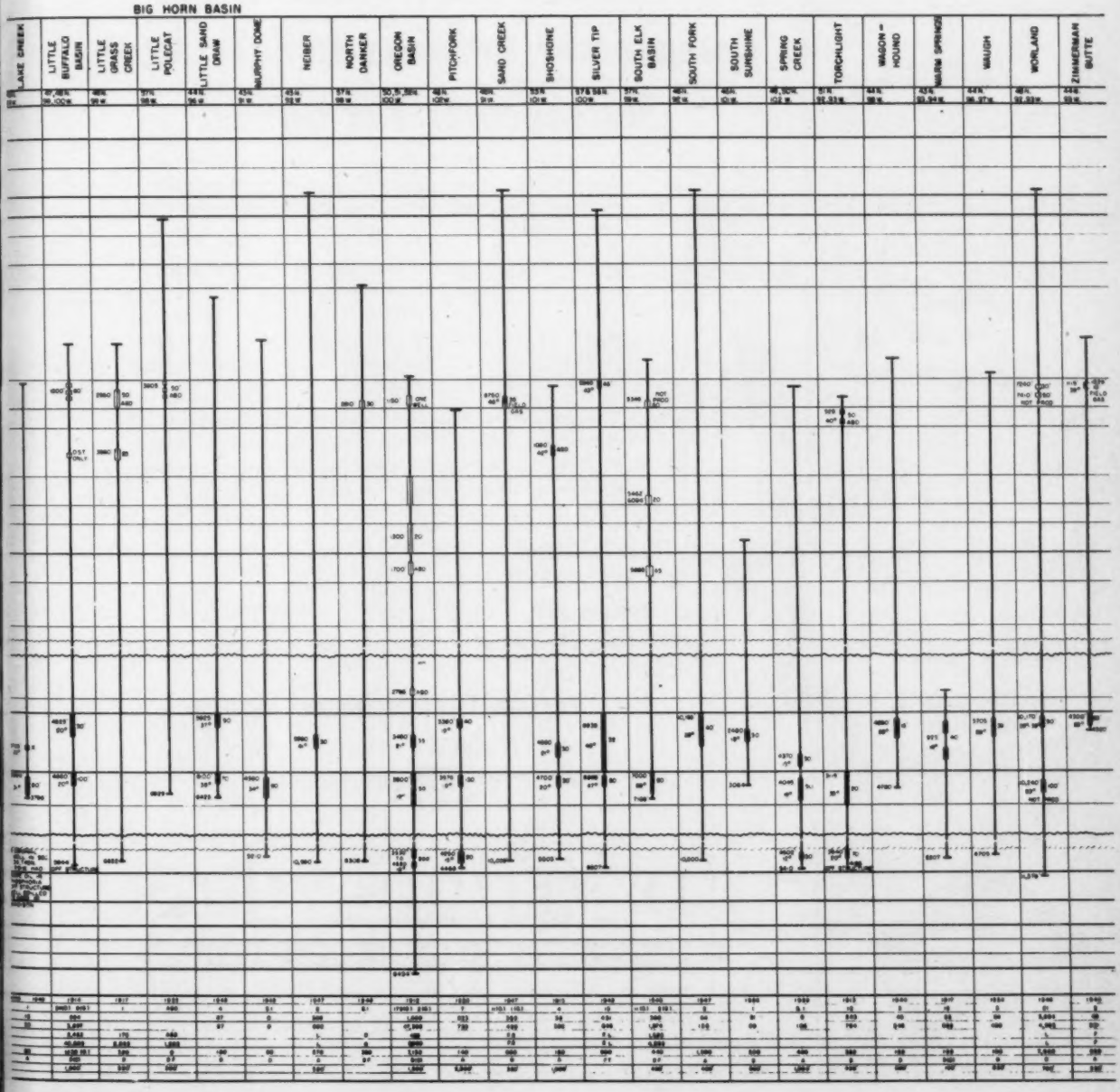

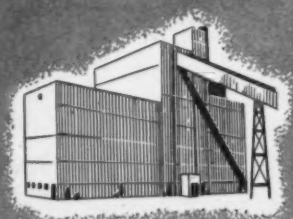

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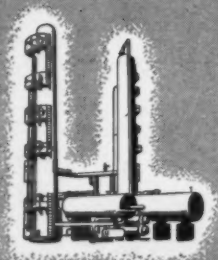

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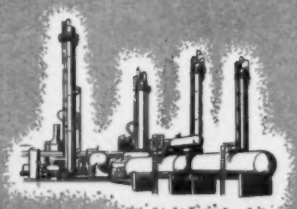

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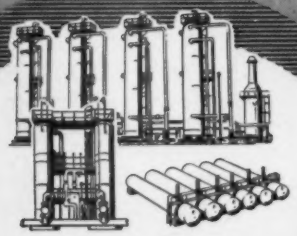

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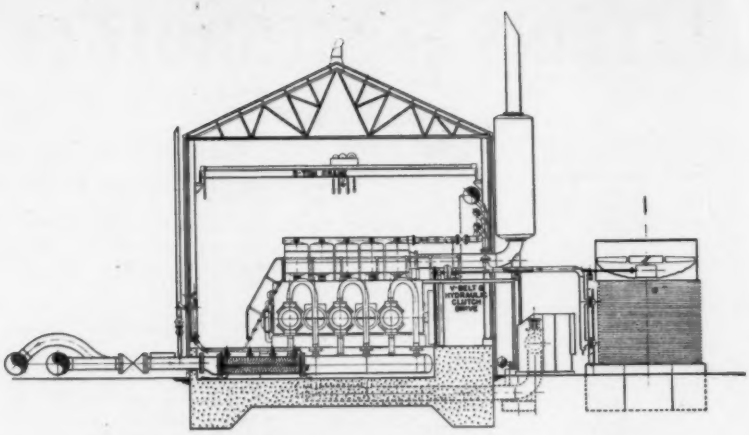

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QUESTIONS on TECHNOLOGY

by W. L. Nelson
Consulting Engineer

What Are Special Crude Oils?

When is a crude oil a special one that warrants a premium price? Are these always used for lubricating oils?—A. F. C.

It may be difficult to define clearly exactly which crude oil is a premium one, but the refiner has no difficulty because he quickly learns that in his plant some oils yield larger percentages of products than others. Certain premium qualities are so commonly understood that they scarcely need to be mentioned. As a major example, crude oils are priced at the well by a gravity schedule which is almost universally 2 cents higher for each degree A.P.I. Thus a high gasoline content (or high gravity) constitutes premium quality. Likewise, the unique properties of Pennsylvania crude oils are so widely accepted that these crude oils are sold at a price almost double that of other crude oils. High sulfur or sourness are the qualities most frequently mentioned as being unsatisfactory qualities.

Less frequently mentioned properties that may cause a crude oil to be classed as a special are:

1. **Octane number.** — Exceptionally high-octane gasoline attracts attention, particularly at this time or in time of war. If low-end-point fractions (250°-325° e.p.) have a clear motor-method octane number higher than 71, the crude oil from which it comes is called an **aviation-gasoline** crude oil. In most instances, a crude oil that contains 400°-e.p. straightrun gasoline that has a clear octane number higher than 60, will contain useful amounts of aviation-gasoline base stock. If the crude oil does not contain low-boiling fractions of high octane number, it is still superior to most United States crude oils if the regular gasoline has an octane number of 60 or more.

2. **Diesel index.**—Such fuels must have a high diesel index or cetane number and at the same time a low pour point. These opposite qualities are found in the fuels from only a few crude oils, ones that are not typically intermediate base and yet are not naphthene base. If the diesel index of the fraction boiling between 400° and 700° F. exceeds 50, and at the same time has a pour point lower than 0° F., the crude oil from which it is derived is classed as a **diesel-fuel** crude. The sulfur content of the fuel should not be over 1.0, and, of course, a lower sulfur content is even better. Diesel fuels have recently become so important that the above requirements are being modified, mainly by lowering the cut point downward from 700° F.

3. **Low-pour lubes.**—Although a viscosity index of 70 or more is preferred in lubricating-oil stocks, if the lube fractions of a crude oil have a viscosity index of 30-60 and at the same time have such a low point (20 to minus 20° F.) that dewaxing is unnecessary, such a crude oil as classed is a **low-pour-lube** crude. Frequently such crude oils are also **diesel-fuel** crudes.

4. **Paraffinic lubes.**—High-viscosity-index lubricating-oil fractions are valuable and the crude oils from which they are derived are called **lube** crudes. Associated properties such as light color, low sulfur, heat stability, etc., are also important. However, these properties are usually associated with one another. A really superior crude oil of this variety should contain lubricating-oil fractions whose viscosity index exceeds 85.

Of course, in each of the above instances, the crude oil must contain reasonably large amounts of the product that governs the classification of the crude oil.

In many instances the special crude oiis can be selected on a basis of Characterization Factor *(see Character of Crude Oils, The Oil and Gas Journal, March 9, page 94, and March 23, 1950, page 348.)* Thus, in a most general way the major product in a special crude oil has factors as follows:

	Characterization factor*
Aviation-gasoline crudes	low-11.7
Diesel-fuel or low-pour lube crudes	11.5-11.6
Lube crudes	12.0-up

*Of the important product.

Less widely recognized special properties are:

1. **Low sulfur.**—If the sulfur content of the crude is low compared with the sulfur content of other crudes of the same gravity or general properties, it may be classed as a **low-sulfur** crude. This applies most frequently to naphthene-base crude oils because many naphthene-base crudes contain large amounts of sulfur.

2. **Cracking.**—If a crude oil contains unusually large percentages of material boiling between 400° F. and below 900° F., it is valuable for catalytic cracking. Some low-gravity crude oils have been encountered which contain 50 to 70 per cent of the 400°-900° F. material. Stated in another way, such crude oils contain little asphaltic material. Finally, naphthenic charge stocks or crude oils which do not contain large amounts of asphalt are valuable for thermal cracking. They yield cracked gasolines with clear octane numbers ranging from 71 to even 75 for stocks with characterization factors of 11.6 to 11.2.

3. **Asphalt.**—Ordinarily, asphalt is not a desirable product, but under special market conditions, the asphalt content of a crude oil is highly prized.

Diesel Index and Pour Point of Diesel Fuels

What is the relation of detonation quality to the pour points of diesel fuels? If we change the diesel index by making a different boiling range, how will the pour point be changed? S. E. F.

There is no relationship that can be generally applied to all crude oils, i.e., each crude oil will exhibit a specific relationship. However, from a limited amount of data, mainly intermediate-base Texas and Venezuelan crude oils, the relationship shown in Table 1 was developed.

TABLE 1

Approximate Pour Points and Diesel Indexes of Various Diesel Fuels all Made from the Same Crude Oil, Compared with the Same Properties for a 550° F. Midboiling-Point Fuel

Midboiling point of diesel fuel, °F.	Diesel index*	Pour point†
450	2.0	
475	0.7	33 lower
500	0.2	20 lower
525	0	10 lower
550	0	0
575	0	9 higher
600	0.2	18 higher
625	0.6	26 higher
650	1.5	35 higher
675	5.5	43 higher

*Subtract these numbers of units from the D.I. of the 550° F. fuel. †Add or subtract this number of degrees to the pour point of the 550° F. fuel.

The relationship of Table 1 does not agree exactly with the data given in Fig. 34, page 128 of the third edition of Petroleum Refinery Engineering (McGraw-Hill Book Co., Inc., New York, 1949) but it is thought that the general trend of experimental data given here cannot be questioned.

Thus, the diesel index of fractions either of lower or higher midboiling points than 525°-575° F., are lower than for diesel fuels exhibiting this range of midboiling point. Obviously, the low-boiling diesel fuels have lower pour points. As one example of the use of Table 1, at 580°-700° F. diesel fuel of 25 pour point and 52 diesel index can be converted into a sub-zero diesel fuel by extending the boiling range to 400°-700° F. According to Table 1, a 400°-700° F. fuel will have a pour point of about —8° F. and at the same time a diesel index of about 53.4.

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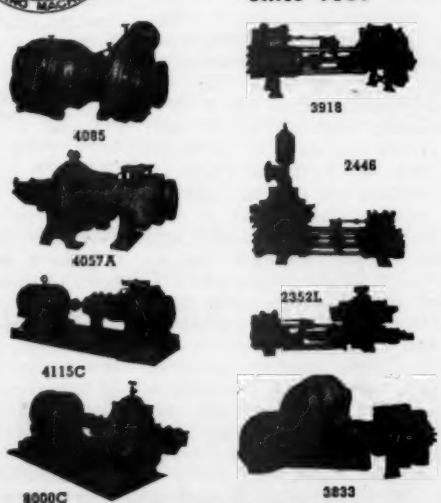

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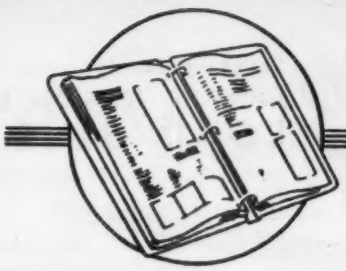


THE REFINER'S notebook

No. 56

Making Metallic Soaps

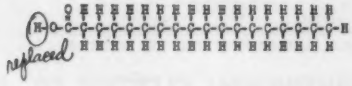
IN the preceding installment fats and fatty acids were discussed. Most fatty materials contain acids having from 12 to 18 carbons, with the 16 and 18-carbon chains predominating. The principal fact about a fatty-acid molecule, of interest in a study of greases, is its readiness to add a metal atom to its structure.

As fatty acids differ in character, so must the soaps—and, in turn, the greases made from them. However, the kind of metal used in making the soap, the nature of the petroleum oil, and the method of making the grease, all have a bearing on the consistency and other characteristics of the final product.

The principal metals used in making metallic soaps are: calcium, sodium, aluminum, barium, and lithium. Various other metals have been used experimentally. Why should we familiarize ourselves with the effect of different metals on the nature of the various metallic soaps used in grease making? Because the kind of metal in a soap affects the physical characteristics of a grease by influencing the length, strength, and type of soap fibers formed. The metal also influences the performance characteristics which determine a grease's ability to do a satisfactory lubricating job under given conditions of moisture, heat, cold, etc.

Saponification

The process of making soaps out of fatty acids is dependent on the chemical reaction called "saponification." Let's take another look at a picture of a fatty acid molecule—and the way it is hooked together—so that we can visualize this chemical process of "saponification" more readily:



Stearic acid.

When an acid molecule such as this is brought into contact under the right conditions with certain kinds of chemical compounds that contain metal atoms, they immediately start a process of "trading parts." The metal atom also trades places with "acid" hydrogen atom that is attached to one oxygen of the end "carboxyl" group. This special kind of chemical exchange is known as "saponification," and the resulting chemical structure is a molecule of metallic soap that looks this this:

Sodium stearate (a typical soap molecule).

It is the metallic soap molecule that makes a grease something much more important than just a "thickened oil." So let's examine it closely and pick out the particular characteristics that enable it to make a lubricating grease when mixed with petroleum oil.

One of the most significant tendencies of soap molecules is that of lining up side-by-side and end-to-end to form relatively large fibers made up of a great number of soap molecules. These fibers are quite similar, on an atom-sized scale, to strands of yarn made up

Fig. 1—A metallic soap is produced by substituting a metal atom for the hydrogen atom at the "carboxyl" end of fatty acid molecules. This seemingly slight chemical change alters the whole character of the material and accounts for its fiber-forming ability when used in making grease.

of a great number of wool "hairs." This fiber-forming trait seems to be contributed to the soap by the metal atom, since fatty-acid molecules exhibit no such tendency. Furthermore, the fiber-forming ability of the soap varies greatly with the kind of metal atom. For example, sodium soaps usually form large, long, heavy fibers; while calcium soaps form short and much more delicate fibers. Although all soap-base greases have been definitely shown to contain soap fibers, in some instances the fibers are so large as to be visible to the naked eye while in others they are so small as to be visible only under very powerful microscopes.

In this discussion of soap-base greases we can logically assume that it is the fibers of soap, forming the typical lattice-like structure, that gives the grease mass its "body"—that is, its "stiffness" or plastic structure. The size, strength, and distribution of the fibers govern its final texture and have much to do with its ability to stand up under the working and churning action it gets in a moving bearing—a property called "mechanical stability."

In addition to this let's remember the concept of the polarity of soap molecules. We have assumed that this polarity may help to explain the strongly adhering properties exhibited by grease in many applications—a property not found to the same degree in nonpolar petroleum oils.

Soaps, then, are substances made by the chemical combination of fatty-acid molecules with metal atoms. The soap supplies the fibrous structure which gives a lubricating grease its semisolid body. This fibrous, lattice structure of the soap in the grease, in turn, determines to a large extent the physical characteristics of the grease, and the way it performs its lubricating tasks.

The polar soap molecules, as has been shown, are almost identical in structure with the fatty-acid molecules from which they were made. The only difference is found in the end carboxyl atom where a hydrogen atom is replaced by a metal atom. The remainder of the molecule, on the other hand, is by far the largest part from a size standpoint.

It is seen then that different kinds of metals give rise to entirely different results, but this is only part of the story. The kind of fatty acid and petroleum oil, together with the method of manufacture employed, are also factors that have a bearing on the physical and performance characteristics of the grease produced.

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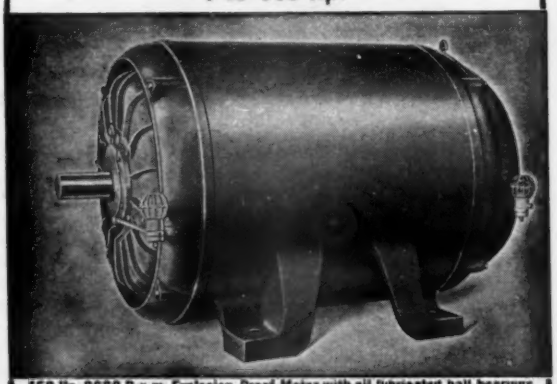

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Water-Flood Prediction Chart

IN predicting water-flood recovery, Stiles[1] makes use of an equation to calculate the water cut of the production stream in terms of the permeability distribution. A chart is presented here for solving that equation graphically.

The equation is:

$$W = \frac{CA}{CA + (1 - C)} \qquad (1)$$

where

W = fractional water cut, bbl. water per total bbl. fluid
C = fractional permeability capacity flowing water
1 — C = fractional permeability capacity flowing oil
$A = K_w/K_o \; \mu_o/\mu_w \; \beta$
K_w/K_o = relative permeability ratio, water to oil
μ_o/μ_w = viscosity ratio, oil to water
β = formation volume factor of oil, for the calculations on this chart taken as unity

Chart use.—The chart is read as follows:

1. By setting K_w/K_o on the lower scale and μ_w/μ_o on the upper scale a value of A is found on the diagonal. Example, $K_w/K_o = 0.4$; $\mu_w/\mu_o = 0.4$; A = 1.0.

2. From the chosen value of C on the lower scale a perpendicular is dropped to the diagonal, reading Y. Example, for C = 0.70; Y = 2.4.

3. Set this value of Y on the upper scale and pass through A to read X on lower scale. Example, Y = 2.4; A = 1.0; X = 2.4.

4. Set this value of X on the diagonal and drop a perpendicular to the left scale to read the value of W. Example, X = 2.4; W = 0.70.

The formula would give:

$$A = 0.4/0.4 \times 1.0 = 1.0$$

$$W = \frac{0.70 \times 1.0}{0.70 + (1 - 0.7)} = 0.70$$

This value of water cut applying at this value of fractional capacity must be related to some other engineering quantity. As shown by Stiles[1] the value of C can be computed from permeability distribution and related to the fractional recovery. This will be shown in a later chart.

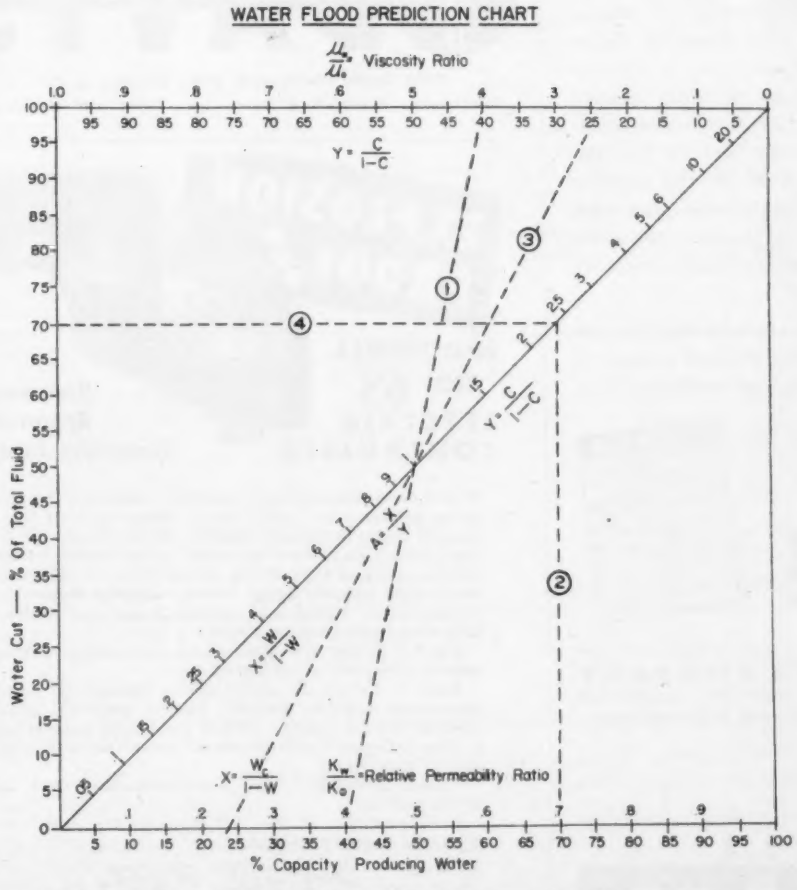

Chart for determination of water cut, as percentage of total fluid produced in water-flood operations (prepared by J. P. Schmalz).

Reference

1. Stiles, W. E., "Use of Permeability Distribution in Water-Flood Calculations," A.I.M.E., Trans. Vol. 186, page 10.

Series by Dr. John C. Calhoun, Jr., Chairman, Petroleum Engineering School, Penn State College

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The former record of 610½ days set in 1948 by a California refinery was broken last November 8. The announcement said that the unit discontinued operations for "turn around" at 3 a.m. January 13. Workmen resumed work at clean-out operations on the big furnace and auxiliary units January 17.

The Sunray cracker had run continuously since March 7, 1949, a total of 16,191 hours. It produced more than 4,050,474 bbl. of high-octane gasoline during the run, and consumed about 6,802,219 bbl. of raw charge processed at an average daily charge rate of approximately 10,000 bbl. "On stream" efficiency of the Duncan refinery has been calculated at 99.7 per cent.

An inspection of the unit immediately after shutdown by F. L. Martin, vice president for refining, and engineers of Universal Oil Products Co., licensors for the unit, revealed a minimum of corrosion and internal wear. Sunray estimates that the big cat will be completely revamped and back on stream by February 1.

To Increase Buna-N Output

BATON ROUGE. — Announcement of intended doubling of capacity of the Buna-N synthetic-rubber plant of Esso Standard Oil Co. here was made last week with the purchase of the plant by the United States Rubber Co.

John P. Coe, vice president and general manager of the Naugatuck Chemical Division of United States Rubber said that its present capacity is 15,000,000 lb. of Buna-N rubber and high-styrene latex annually.

United States Rubber Co., one of the pioneers in synthetic rubber, operated government-owned plants at Naugatuck, Conn., Los Angeles, and Institute, W. Va., during World War II. During the postwar period it has been operating plants at Naugatuck and Borger, Tex., while maintaining under standby condition the Institute plant.

W.P.R.A. Regional Meeting

Effects of emergency federal controls on refinery wages and manpower will be a primary object of attention at the first of the 1951 series of regional meetings of Western Petroleum Refiners Association, according to John C. Day, W.P.R.A. secretary.

First day of the meeting, to be held February 22-23 at the Charleston Hotel in Lake Charles, La., will be devoted to the discussion of industrial relations problems, while the second day will be taken up with a technical program, Day said.

The meeting is the first to be held in Lake Charles which was selected as a central location convenient to refiners in the Gulf Coast, Louisiana, and Texas areas.

W.P.R.A. plans to hold other regional meetings this year in Wichita, Tulsa, Lansing, Mich., and Casper, Wyo. The annual nationwide meeting, usually attended by more than a thousand refiners, will be held in San Antonio, April 2-4.

Refining Dividends Up

WASHINGTON.—Publicly reported dividend payments of oil-refining corporations in November amounted to $9,700,000, an increase of $300,000 over the corresponding 1949 period, it was announced last week by the Department of Commerce.

Dividends paid during the 3 months ended with November, however, were $62,000,000 above those paid in 1949, $171,800,000 against $109,900,000, the department stated. The dividend increase of refining corporations was considerably greater than that of corporations as a whole, which increased a little more than one-third over the 1949 period.

Catalyst Plant Contracted

PITTSBURGH.—Rust Engineering Co. has announced the signing of a contract calling for the construction of a new plant which will embody new processing techniques in the production of catalyst used in the preparation of high-octane gasoline. The new plant will be constructed at Weeks, La., for Bay Chemical Co., a division of Morton Salt Co.

Contract for the new installation includes process design, engineering, and plant construction. The process design will be furnished by Rust Process Design Co., a Rust subsidiary.

To Double Plant Capacity

HOUSTON.—The capacity of the furnace carbon-black plant now under construction 8 miles northeast of this city will be doubled, Max Nuttall, superintendent for Stearns-Roger Manufacturing Co. of Houston and Denver, contractors for J. M. Huber Corp. of New Jersey, said here this week.

Nuttall said that the first unit of

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Croloy 5-Ti	(7% Cr, ½% Mo)
Croloy 7	(9% Cr, 1% Mo)
Croloy 9-M	(18% Cr, 8% Ni)
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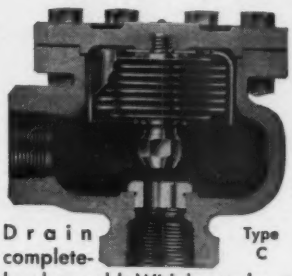

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the new plant, with a capacity of 30,000,000 lb. of HAF-type (high-abrasive furnace) black annually, is due to be placed in production during May 1951. Currently 25 men are employed on the project.

The second unit, with a projected capacity of 30,000,000 lb. annually, is projected for operation during November-December 1951.

Petrol Reactivates Plant

TEXAS CITY, Tex.—Petrol Refining Corp. last week commenced work here to place in operation its 30,000-bbl. crude-oil refinery, which has been shut down for 15 months. The present payroll of 50 will be expanded to about 150 men, February 1.

D. E. Fuller, superintendent, said that he expects to have the plant on stream by February 15. The Houdry fixed-bed catalytic unit is now being reactivated. Plans are under way to activate an H-F alkylation unit.

The refinery will make 100 and 130-octane avgas, 86 and 92-octane motor fuel, kerosine, No. 2 fuel oil, diesel oil, Bunker "C," and some excess isobutane.

Originally constructed by the Defense Plant Corp. during 1944, it was purchased by the Petrol Terminol Corp. on September 1, 1948.

Present officers of Petrol Corp. include: V. A. Fogg, president; William H. Fetter, vice president and general manager; and William J. Fields, secretary-treasurer.

Alkylation Progress Told

JERSEY CITY. — Newest developments in alkylation, basic process in the production of high-octane aviation fuel, are discussed in a booklet entitled Kelloggram No. 5 (1950), just published by M. W. Kellogg Co., refinery and chemical engineers of Jersey City, N. J.

Alkylation employed as a method of raising octanes to meet the challenge of high-compression automobile engines is also discussed in the publication. The process has promising possibilities in this field, according to Kellogg.

In addition to reviewing the process and its developments since the end of World War II, the Kelloggram describes two new alkylation units, built before the present emergency and aimed solely toward producing a high-octane blending component for automotive gasoline.

Rubber Research Speedup

MINNEAPOLIS.—A research program aimed at discovery of what molecules of synthetic-rubber ingredients do when they combine to form the giant molecules of synthetic rubber is being speeded up by chemists at the University of Minnesota under the pressure of increased national security needs.

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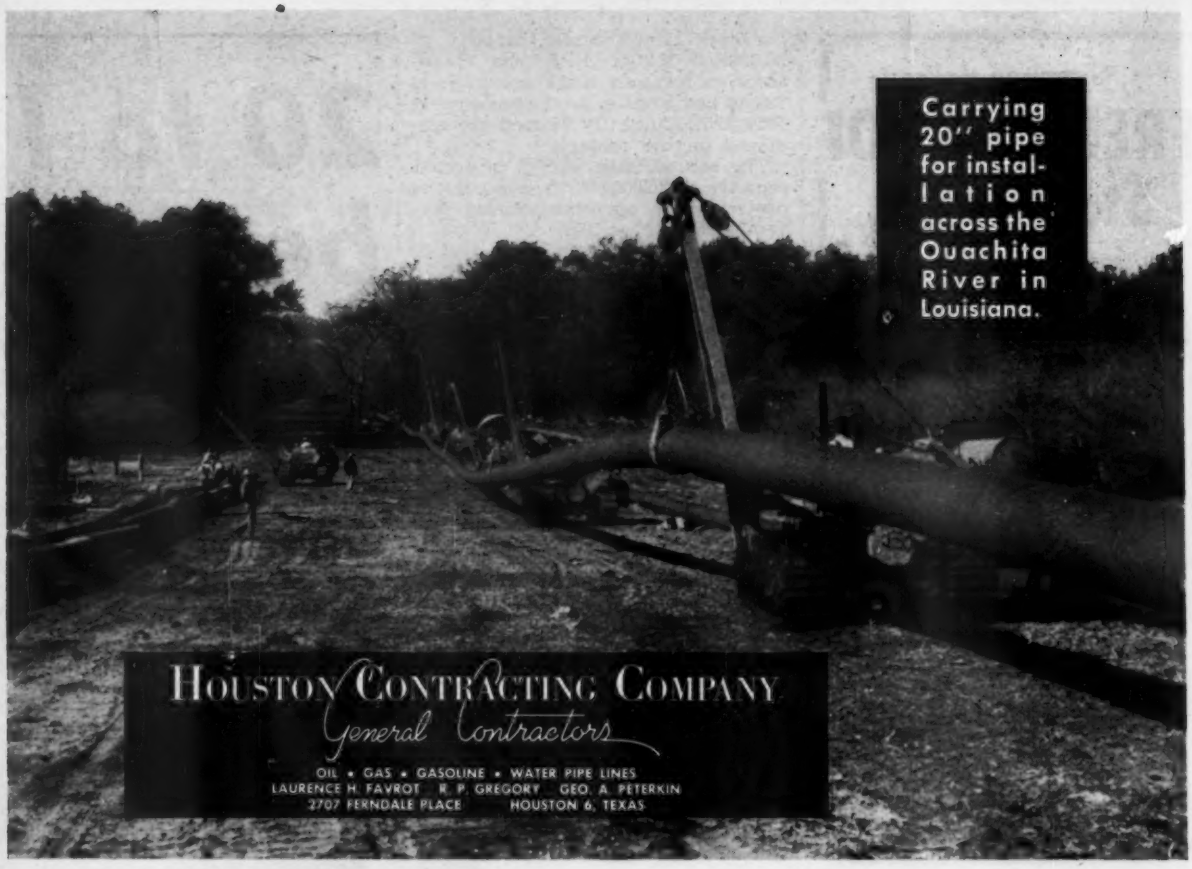
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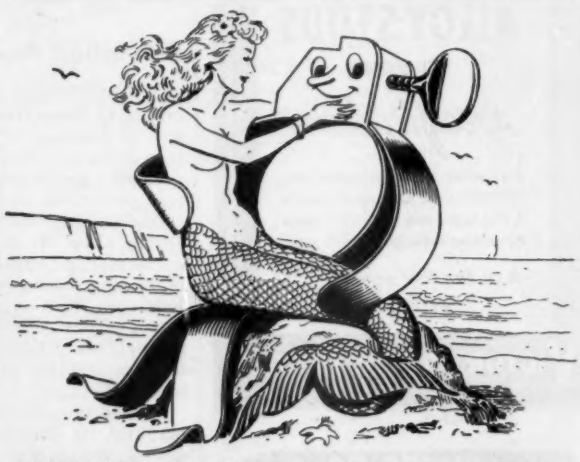

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PIPE LINES

New Gulf Firm

Company to build, operate West Texas crude outlet

HOUSTON.—A new firm, West Texas Gulf Pipe Line Corp., has been formed for the construction and operation of the big-inch West Texas to Gulf Coast crude line which is expected to be under way late this summer *(The Oil and Gas Journal, page 32, January 4)*.

The new firm is to be headed by J. H. Russell as president. Russell is vice president of Gulf Refining Co. in charge of pipe lines. Companies participating in the firm include Gulf Oil Corp., which owns more than 50 per cent of the stock; Sun Oil Co., Standard Oil Co. (Ohio), Pure Oil Co., and Cities Service Oil Co. Chief engineers of these companies met at the Gulf office in Houston on January 18 to discuss plans for the project.

Capacities of sections of the system have been estimated as follows: Colorado City-Wortham, Tex., 26-in., 300,000 bbl. daily; Wortham-Sour Lake, Tex., 24-in., 200,000 bbl. daily. These two sections together will be from 440 to 450 miles long. An 18-in. lateral from Wortham to Longview, Tex., will have capacity of 100,000 bbl. for delivery of crude to the Mid-Valley Pipe Line Co. system which terminates at Lima, Ohio.

The line is designed to provide a much-needed outlet for crude from Scurry County and other West Texas fields, and to serve refineries in the Houston-Beaumont area.

T.G.T. Plans Expansion

WASHINGTON.—An expansion program estimated to cost $51,028,000 and increase Tennessee Gas Transmission Co.'s design delivery capacity by 40,000,000 cu. ft. of natural gas per day has been placed by the company before the Federal Power Commission.

Also included in the application by T.G.T. was provision for development of a gas-storage project which would add 200,000,000 cu. ft. per day of delivery capacity to the company system during periods of maximum customer demand.

The new project would include approximately 438 miles of loop on Tennessee's Buffalo and New England extensions; compressor units aggregating about 44,000 hp. in existing or authorized stations, and approximately 14,000 hp. in a new compressor station.

Facilities would be used to make available on peak days an additional 194,000,000 cu. ft. of natural gas to Northeastern Gas Transmission Co., a subsidiary of Tennessee, and to provide 46,000,000 cu. ft. of gas per day to be used initially to build up Tennessee's storage position. This reserve would subsequently be made available for sale. Northeastern has been authorized to serve part of the New England area with natural gas and recently was denied permission to serve additional customers in the area.

To Complete Line in 1951

KANSAS CITY, Mo.—Panhandle Eastern Pipe Line Co. and its subsidiary, Trunkline Gas Co., expect to complete this year a $120,000,000 construction program, including the $81,000,000 Texas-to-Illinois gas pipe line being constructed by Trunkline.

The pipe line will increase Panhandle's capacity to 800,000,000 cu. ft. daily from the present level of about 550,000,000 cu. ft. As a result of the expansion program, Panhandle Eastern's gas customers in Michigan can count on an annual supply of 100 billion cubic feet, about three times the volume distributed during World War II. In 1950 Panhandle supplied 83 billion cubic feet of natural gas to Michigan.

Leslie T. Fourier, vice president and treasurer, said the added capacity will meet increased defense demands for natural gas in the system's service territory, including Michigan and other states in the north-central area.

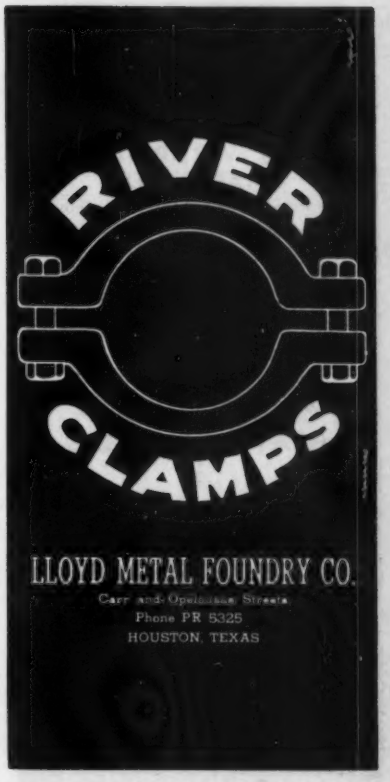
Loop-Line O.K. Sought

WASHINGTON.—Tennessee Gas Transmission Co., Houston, has announced plans to construct 25 miles of 26-in. loop line along its authorized Buffalo extension, and to install 2,000 additional horsepower at an existing compressor station in an application submitted to the Federal Power Commission.

Capital cost of the proposed facilities is estimated at $2,454,000. They would be used to transport 25,000,000 cu. ft. of natural gas per day to Tennessee's northern rate zone for delivery to Manufacturers Light & Heat Co., Pittsburgh. Sale of this gas was authorized previous by the FPC. It is currently being delivered to United Fuel Gas Co., Charleston, W. Va., in Tennessee's eastern rate zone for the account of Manufacturers Light & Heat.

Texas Gas Installs Stations

OWENSBORO, Ky.—Texas Gas Transmission Corp. has announced completion of a $2,000,000 construc-



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tion program, which will increase its natural-gas, pipe-line delivery capacity by 60,000,000 cu. ft. per day.

Included in the program was the construction of a 4,500-hp. compressor station at Hardinsburg, Ky., and the addition of 5,460 hp. at four existing stations at Slaughters and Calvert City, Ky., Kenton, and Covington, Tenn.

The additional facilities will provide the company with delivery capacity sufficient to meet top heating requirements of its wholesale utility customers in Louisiana, Arkansas, Mississippi, Kentucky, Indiana, and eastern Illinois. Earlier this month, the company announced a new $42,300,000 pipe-line construction program to meet increased defense needs in its area *(The Oil and Gas Journal, January 11, 1951, page 50)*.

Plans Compressor Units

WASHINGTON.—Cities Service Gas Co., Oklahoma City, plans to install 13,080 additional horsepower at compressor stations on its pipe-line system in Kansas, Oklahoma, and Missouri, if the Federal Power Commission approves its present application. The installations would cost an estimated $4,204,000.

Cities Service also asks for permission to build about 56 miles of line in Sedgwick, Harvey, and Labette counties in Kansas, and to abandon 192 miles of line in Reno, Sedgwick, Wilson, Harvey, Kingman, and Labette counties, Kansas.

Three additional 1,600-hp. units would be installed at the existing Hugoton station in Grant County, Kansas; a new 6,400-hp. station near Greensburg, Kans.; a new 1,200-hp. station near Welch, Okla.; and a 680-hp. station near Pierce City, Mo. The units at Hugoton station would increase the Cities Service system's daily capacity to 323,000,000 cu. ft.

Valley Finishes Line Plans

HOUSTON.—Valley Gas Pipe Line Co., Inc., is looking forward to commencing construction of its Gulf Coast-Illinois and Indiana project this year, according to Clyde Austin, purchasing agent.

Arrangements have been substantially completed for financing and for the purchase and sale of natural gas or transmission to the Illinois-Indiana area. Some changes may be made in the route so that the system might serve northern defense areas. But it is expected that the length of the system will only be slightly modified. According to earlier announcements the Valley system would include a 500-mile gathering system and a 1,000-mile trunk line.

A hearing by the Federal Power Commission on the Valley proposal is expected to be held not later than March. Construction would start soon after the granting of the FPC permit.

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Pipe-Line Construction

FOLLOWING is a tabulation of pipeline projects which are planned or under construction. Included are crude-oil, products, and natural-gas lines. The list was compiled from surveys made by The Oil and Gas Journal.

Crude-Oil Pipe Lines

Gulf Refining Co., Tulsa, Pipe Line Division.—72 miles, 6-in., under way, El Dorado, Kans., to Webb City, Okla.; Pipeline Service Co., contractor. J. W. Welcher Atlanta, Kans., spreadman.

Pan American Pipe Line Co.—80 miles, 10-in., under way, from southern part of Scurry County, Texas, to a connection with Humble pipe line near San Angelo, Tex.; Brown & Root, contractor.

Platte Pipe Line Co.—1,080 miles, 20-in., underway, Chatham Station, Wyo., to Wood River refining area in Illinois; R. H. Fulton, contractor, Chatham Station, Wyo., to Holdredge, Neb.; Bishop & Lock, contractor, Holdredge, Neb., to Nebraska-Kansas line; Ramsey Brothers, contractor, Nebraska-Kansas line to Missouri River; O. R. Burden, contractor, Missouri River to Mississippi River.

Portland Pipe Line Co. (Montreal Pipe Line Co., Ltd.).—85 miles, 18-in., under way, Portland, Me., to Gorham, N. H.; Oklahoma Contracting Co., contractor of Section 1; H. A. Waylie, Westbrook, Me., superintendent.

Portland Pipe Line Co. (Montreal Pipe (Canada). — 321 miles, 18-in., contracted, Gorham, N. H., to international boundary near N. Troy, Vt.; Associated Pipeline Contractors, Inc., contractor of Section 2, Lacy Walker, Barton, Vt., spreadman.

Portland Pipe Line Co. (Montreal Pipe Line Co.).—68 miles, 18-in., contracted. Canadian boundary to Montreal; Fred Mannix, contractor of Section 3.

Sinclair Pipe Line Co.—700 miles, 22-in., planned; Drumright, Okla., to Chicago.

Texas Pipe Line Co.—56 miles, 12¾-in., Chico to Wichita Falls, Tex.; R. H. Fulton & Co., contractor; M. L. Boyd, spreadman, Henrietta, Tex.

Products Pipe Lines

Great Lakes Pipe Line Co.—355 miles, 12-in., authorized, Kansas City through Omaha and Sioux City Iowa, to Sioux Falls, S. D.

Phillips Petroleum Co.—281 miles, 10-in., proposed, Borger, Tex., to Yale, Okla.

Phillips Petroleum Co. and Shamrock Oil & Gas Co.—155 miles, 6-in., planned, extension on 600-mile line at Phillips, Tex., via La Junta, to Denver.

Plantation Pipe Line Co.—432 miles, 14-13-in., Baton Rouge to Bremen, Ga.—to Charlotte, N. C., Williams Brothers, Co., contractor. Completion scheduled by end of 1951.

Salt Lake Pipe Line Co.—140 miles, 8-in., contracted Boise, to Baker, Idaho; Bechtel Corp., contractor.

Susquehanna Pipe Line Co. — 126 miles, 8⅝-in., under way, Toledo, Ohio, to Sarnia, Ont., Canada; H. L. Gentry Construction Co., contractor. James Mitchell, Toledo, Ohio, spreadman.

Standard Oil Co. (Ind.).—50 miles, 8-in., north of Sugar Creek, Mo., refinery; Lawhon Construction Co., Southern Mill & Mfg. Co., contractors.

Standard Oil Co. (Ind.).—144 miles, 8-in., authorized, Neodesha, Kans., to Sugar Creek, Mo.

Natural-Gas Pipe Lines

Atlantic Gulf Gas Co. (United Gas Pipe Line Co.).—1,530 miles, planned, Alabama-Florida-Georgia-South Carolina.

Cities Service Gas Co.—40 miles, 4-10 in., Kansas, field office, Liberal; Pat Gilmore, spreadman; Knup Construction Co., Inc., contractor.

Commonwealth Natural Gas Corp. — 84 miles, 12-in., contracted, Richmond to Newport News, Va.; Ray L. Smith, contractor.

Commonwealth Natural Gas Corp. — 104 miles, 18-in., under way, Stanardsville to near Petersburg, Va.; Ray L. Smith & Son, contractor, Don C. Smith, Orange, Va., spreadman.

Commonwealth Natural Gas Corp. — 537 miles, 20-in., proposed, West Bend, Ky., to Norfolk, Va.

Consolidated Gas Utilities Corp.—41 miles, 12-in., planned, Enid to Blackwell, Okla., Marlow to Cement, Okla.

East Tennessee Gas Corp.—150 miles, 16-in., under way, Knoxville to Bristol, Tenn.

East Tennessee Natural Gas Co.—398 miles, 3-16-in., planned, Nashville to Chattanooga to Knoxville, Tenn., and laterals.

East Tennessee Natural Gas Co.—106 miles, 12-16-in., contracted, Lobelville to Tullahoma, Tenn.; Oman Construction Co., contractor.

East Tennessee Natural Gas Co.—130 miles, 12-in., under way, Athens, via Chattanooga, to Tullahoma, Tenn.; N. A. Saigh Co., Inc.

East Tennessee Natural Gas Co.—120 miles, 12-in., planned, Chattanooga to Knoxville, Tenn.; Walters & Saigh Construction Co.

East Tennessee Natural Gas Co.—185 miles, 16-in., planned, Lobelville to Chattanooga, Tenn., Walters & Saigh Construction Co.

Eastern Natural Gas Corp.—292 miles, 24-in., proposed, Phoenixville, Pa., via New Haven and Hartford, Conn., Providence, R. I., Springfield, Mass., and Boston.

Egyptian Natural Gas Co.—80 miles, 6-8-in., authorized, Norris City to Salem-Centralia, Ill., area.

El Paso Natural Gas Co.—450 miles, 24-in., under way, San Juan basin, New Mexico, to Franconia, Ariz.

Home Gas Co.—70 miles, planned, Orange, Sullivan, Rockland, and Cattaraugus counties, New York.

Magnolia Petroleum Co.—60 miles, 4-24-in., gathering system in LaWard and Lolita fields, Texas; Henry L. Lemons & Co., contractor. W. A. Remington, spreadman.

Michigan Gas Storage Co.—150 miles, 20-in., planned, Chelsa terminal-Winterfield and Cranberry Lake, Mich.; Mahoney Contracting Co., contractor.

Michigan-Wisconsin Pipe Line Co. — 197 miles, 6-18-in., under way, Milwaukee to Green Bay and Two Rivers, Wis.; G. G. Griffis Construction Co., contractor. F. K. Egan, Fond du Lac, Wis.

MidSouth Gas Co.—40 miles, 12-in., Helena to Forrest City, Ark.; Tulsa Construction Co., contractor; Frank McCoy, spreadman; field office, Marianna, Ark.

Mississippi River Fuel Corp. — 40 miles, 18-in., authorized, Dubach to Perryville, La.

New York State Natural.—164 miles, 16-in., planned, Ithaca to Albany, N. Y.

New York State Natural Gas Corp.—70 miles, 20-in., planned, North Oakford, Pa., to Ohio state line.

Northern Natural Gas Co.—597 miles, 20-26-in., contracted, ten loops from Texas to northern Iowa.

Northern Natural Gas Co.—76 miles, 4 to 12-in., under way, gathering line in vicinity of Hugoton, Kans., Cheek Construction Co., contractor, Troy Cheek, Ulysses, Kans., superintendent.

Northern Natural Gas Co.—111 miles, 24-in., under way, Ogden, Iowa, to St. Paul, Minn.; R. B. Potashnick, contractor.

Northern Natural Gas Co.—75 miles, 26-in., under way, north of Beaver, Okla.; R. H. Fulton & Co., contractor of Loop 2. Merele Lewellen, Mead, Kans., spreadman.

Northern Natural Gas Co. — 72½ miles, 26-in., under way, Bushton to Minneapolis, Kans.; R. H. Fulton & Co., contractor of Loop 4. M. L. Boyd, Salina, Kans., spreadman.

Northern Natural Gas Co.—155 miles, 20-in., contracted, Garden City to Bushton,

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The Terrain Oklahoma Contracting Corp. has tackled in building the nation's Pipelines has been rough. Yes. Plenty Rough — But they always get the job done. Oklahoma Contracting is completing a third of a century as the Oldest Pipeline Contractor in America.

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MARLOW self-priming centrifugal pumps make it easy to dependably feed oil to the main lines of gathering systems. For example: The Marlow shown below is one of those in use at Shawnee, Oklahoma, transferring oil from isolated tank batteries at the rate of 120 bbls. per hour at 43 lbs. pressure.

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Kans.; R. H. Fulton & Co., contractor of Loop 5. Jerry Nash, Garden City, Kans., spreadman.

Northern Natural Gas Co.—222 miles, 26-in., under way, Borger, Tex., to Nebraska line; R. H. Fulton & Co., contractor. M. C. Boyd, Ashland, Kans., spreadman.

Northwest Natural Gas Co.—750 miles, planned, Washington, Oregon, and Idaho.

Oklahoma Natural Gas Co.—53 miles, 26-in., Edmond to Depew, Okla.; Trojan Construction Co., contractor.

Oklahoma Natural Gas Co.—40 miles, 16-in., Velma to Chickasha, Okla.; Trojan Construction Co., contractor.

Pacific Gas & Electric Co.—47 miles, 8-in., authorized, Salina to Kilig City, Calif.

Pacific Northwest Pipe Line Co.—400 miles, 22-in., gathering lines on Texas Gulf Coast to Pacific Northwest pipe line.

Pacific Northwest Pipe Line Corp.—2,175 miles, 26-in., authorized, Texas Gulf Coast to Pacific Northwest.

Panhandle Eastern Pipe Line Co.—356 miles, 26-in., authorized, looping in Texas, Oklahoma, Kansas, Missouri, Illinois, Indiana, Ohio, and Michigan.

Phillips Petroleum Co.—99 miles, 3-16-in., under way, Sherman and Hansford counties, Texas gas-gathering system; Vaughn & Taylor Construction Co., Inc., Dumas, Tex.

Piedmont Natural Gas Co.—1,350 miles, 20-in., planned, Greenville, Miss., to Carolinas.

Plains Natural Gas Co.—120 miles, 4-24-in., contracted, Oklahoma-Kansas area, Hugoton field, gathering system; Midwestern Constructors, Inc., (Arey-Phillips Construction Co.) contractor. T. S. Nunley, Liberal, Kans., chief inspector.

San Diego Gas & Electric Co.—53 miles, 16-in., planned, San Diego County, California.

San Diego Gas & Electric Corp. (Southern Counties Gas Co.)—85 miles, authorized, San Diego, Riverside, and Moreno, California.

South Central Alabama Natural Gas Co., Inc.—150 miles, proposed, central Alabama.

South Georgia Natural Gas Co.—248 miles, planned.

South Jersey Gas Co.—75 miles, 10-12-14-in., under way, Pleasantville, N. J., to Bustleton, Pa.; G. G. Griffis, Inc., contractor, Ray Abney, Millville, N. J. spreadman.

Southwestern Michigan Gas Co.—55 miles, 12¾-in., proposed, Oakland County to Marysville, Mich.

Southern Counties Gas Co. of California.—81 miles, 20-in., authorized, looping.

Southern Natural Gas Co.—18 miles, 18-in., under way, Gwinville, Miss., to Selma, Ala.; Sheehan Pipe Line Construction Co., contractor. Jim Brown, Meridian, Miss., spreadman.

Southern Natural Gas Co.—161 miles, 16-18-in., under way, Selma, Ala., to Elmore, Ala. Associated Pipeline Contractors, Inc., contractor. Lacy Walker and L. H. Gray, spreadman.

Southern Natural Gas Co.—138 miles, 20-22-in., planned, Chattanooga, Tenn., to Lexington, Miss.

Southern Natural Gas Co.—375 miles, 24-in., planned, Gwinville, Miss., to Atlanta, Ga.

Southern Union Gas Co.—78 miles, 8-10-14-in., planned, New Mexico loops and laterals.

Sunray Oil Corp.—133 miles, 8-30-in., system for Snyder gasoline plant, Vaughn & Taylor Construction Co., contractor. D. D. Vaughn, spreadman.

Tennessee Gas Transmission Co.—102 miles, 16-in., under way, Bayou Sale to Kinder, La.; Latex Construction Co., contractor. H. L. Leake, superintendent.

Tennessee Gas Transmission Co.—700 miles, 20-26-in., planned. Burnaugh, Ky., to Massachusetts including 400-mile line to Buffalo.

Tennessee Gas Transmission Co.—95 miles, 20-in., under way, Natchitoches to Kinder, La.; Latex Construction Co., contractor. F. A. Silar, superintendent.

Tennessee Gas Transmission Co.—992 miles, 30-in., planned, first 150 miles of loops to be laid at Monroe, La., Greenville, Miss., Midland and Portland, Tenn.

Tennessee Gas Transmission Co.—70 miles,

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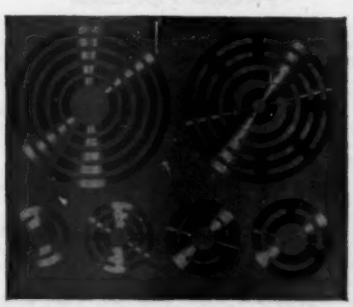

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—which prevents cracks and strains thus eliminating breakage risk of fragments of broken plates getting in cylinders. Best obtainable alloy steels used to meet requirements. Oil hardened and tempered to correct hardness. Precision ground to perfect flatness.
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26-30-in. contracted, between Stations 104 and 110; Anderson Brothers Corp., contractor. E. C. McCoy and Arkie Hobson, Richmond, Ky., spreadmen.

Tennessee Gas Transmission Co.—174 miles, 30-in., under way, western Tennessee and Kentucky; Price-Morrison, contractor. Jack Hodges and R. L. McMillon, superintendents.

Tennessee Gas Transmission Co.—75 miles, 30-in., under way, from near Glasgow northeastward to near Lebannon, Ky.; Morrison Construction Co., contractor. R. L. McMillon, Adamsville, Tenn., spreadman.

Tennessee Gas Transmission Co.—99 miles, 30-in., under way, near Dickson, southwestward to near Selmer, Tenn.; H. C. Price, contractor. Jack Hodges, Linden, Tenn., spreadman.

Tennessee Gas Transmission Co.—170 miles, 26-30-in., contracted, Kentucky; Anderson Brothers Corp., contractor.

Texas Eastern Transmission Corp.—1,400 miles, 26-in., planned, Texas to Pittsburgh, loops.

Texas Gas Transmission Corp.—723 miles, 26-in., under way, Lisbon, La., to Middletown, Ohio.

Texas-Illinois Natural Gas Pipeline Co.—1,300 miles 30-in., under way, Corpus Christi area to Joliet, Ill.

Texas-Illinois Natural Gas Pipeline Co.—100 miles, 26-in., La Gloria to Refugio, Tex.; Midwestern Constructors, Inc., contractor of Schedule 1; M. T. Wilhite, superintendent; field office, Refugio.

Texas-Illinois Natural Gas Pipeline Co.—160 miles, 30-in., under way, Mississippi River to Effingham, Ill.; Midwestern Constructors, Inc., contractor of Schedule 11. M. T. Wilhite, superintendent; field office, Du Quoin, Ill.

Texas-Illinois Natural Gas Pipeline Co.—100 miles, 30 in., Effingham to Sibley, Ill.; Midwestern Constructors, Inc., contractor to Schedule 12.

Texas-Illinois Natural Gas Pipeline Co.—92 miles, 30-in., Sibley to Joliet, Ill.; Midwestern Constructors, Inc., contractor of Schedule 13.

Texas-Illinois Gas Pipe Line Corp.—109 miles, 30-in., contracted, Arkansas and Missouri; Bechtel Corp. A. M. Berlander, general superintendent; field offices at Newport, Ark., J. E. Richardson; Texarkana, Ark., V. L. Williams; Popular Bluff, Mo., A. M. Berlander.

Texas-Illinois Gas Pipe Line Corp.—126 miles, 30-in., contracted; H. C. Price, contractor. Work under way.

Texas-Illinois Gas Pipe Line Corp.—113 miles, 30-in., contracted; H. C. Price, contractor. Work under way.

Texas-Illinois Gas Pipe Line Corp.—97 miles, 26-in., contracted; H. C. Price, contractor. Work under way.

Texas-Illinois Gas Pipe Line Corp.—38 miles, 24-in., contracted; H. C. Price, contractor. Work under way.

Texas-Illinois Gas Pipe Line Corp.—38 miles, 12-in., contracted; H. C. Price, contractor. Work under way.

Trunkline Gas Co.—278 miles, 20-in., contracted, Valley of Texas; R. H. Fulton & Co., contractor.

Trunkline Gas Co.—1,775 miles, 10-26-in., planned, includes 740-mile, 26-in., Lake Charles, La., to Tuscola Station of Panhandle Eastern Pipe Line Co., and 1,035 miles, 10-24-in., Lake Charles, La., to McAllen, Tex., completion due October 1, 1952.

Trunkline Gas Co.—176 miles, 26-in., under way, Darnell, La., to Longville, La.; Houston Contracting Co., contractor of Section A, main line. E. C. Norris, Olla, La., spreadman. W. H. Hayes, spreadman, De Ridder, La.

Trunkline Gas Co.—180 miles, 26-in., contracted, Darnell, La., to Senatobia, Miss.; Anderson Bros. Corp., contractor, Section B, main line.

Trunkline Gas Co.—184 miles, 26-in., under way, Senatobia, Miss., to Paducah, Ky.; R. H. Fulton & Co., contractor of Section C. main line. Clark Williams, Memphis, Tenn., spreadman.

Trunkline Gas Co.—186 miles, 26-in., contracted, Joppa to Tuscola, Ill.; Mahoney Contracting Co., contractor of Section D, main line.

Trunkline Gas Co.—262 miles, 20-in., contracted, McAllen to Altair, Tex.; R. H. Fulton & Co., contractor of Section E and F, lateral lines.

Trunkline Gas Co.—217 miles, 24-in., contracted, Longville, La., to Altair, Tex.; Anderson Bros. Corp., contractor of Sections G and H, lateral line.

Trunkline Gas Co.—71 miles, 20-16-10-in., contracted, Longville, La., south; Houston Contracting Co., contractor of Section 1, lateral line.

United Gas Pipe Line Co.—51 miles, 12¾-in., proposed, Soso and Sherron fields, to near Meridian, Miss.

United Gas Pipe Line Co.—23 miles, 16-in., proposed, Mud Lake field, La., to near Port Arthur, Tex.

United Gas Pipe Line Co.—93 miles, 6 to 16-in., proposed, fields in Plaquemines Parish to near New Orleans.

United Gas Pipe Line Co.—26 miles, 20-in., planned, Louisiana, connecting with East Texas system.

United Gas Pipe Line Co.—90 miles, 16-in., planned, West Bay field to New Orleans.

Utah Natural Gas Co.—325 miles, 22-in., proposed, "Four Corners" in southeastern Utah.

Valley Gas Pipe Line Co., Inc.—500 miles, 24-in., proposed, Berclair, Goliad County, to northeast Saratoga, Hardin County, Texas, to Vermilion Bay area of Louisiana.

Valley Gas Pipe Line Co., Inc.—1,000 miles, 30-in., proposed, Saratoga northeast to Arcadia, La., to El Dorado and Jonesboro, Ark., Cape Girardeau, Mo., Lawrenceville, Ill., Terre Haute, Ind., and Atlanta, Ind., thence to northeast terminal point in southern Michigan.

Virginia Natural Gas Co.—153 miles, Buckingham to Richmond and Portsmouth, Va.

Foreign Crude-Oil Pipe Lines—Planned and Under Way

Cia. de Petroleo Ganso Azul, Ltd.—48 miles, 4-in., planned, Ganso Azul field to

THE PIG WITH THE POKE — CLEANS PIPE LINES

Williamson Gas Line Pigs* Traverse 1½R 90° Bends

←24" Size New Design TYPE GP PIGS with Brushes Mounted on Arched Springs to Compensate for Wear

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*Patents Pending

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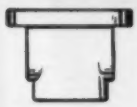
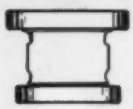
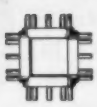


CASING HEAD HOUSINGS



CASING HEAD SPOOLS



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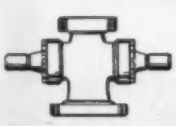
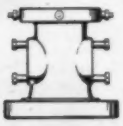
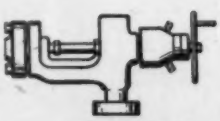


RAM-TYPE TUBING HEADS

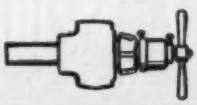


LOCK-SCREW TUBING HEADS

LIFT-PLUG VALVES



FLOW WINGS



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Here are three good reasons why more and more production men are switching to Cameron Forged Steel Christmas Trees exclusively: (1) ***A Superior Product:*** Every unit in the assembly is of close-grain, high tensile strength, forged steel . . . the only Christmas tree available in 100% forged steel. (2) ***Economy:*** The Cameron shops are tooled up for mass production . . . from steel billets to finished products . . . of a wide selection of well head equipment. This everything-under-one-roof plan results in manufacturing economies which are passed on to the customer. (3) ***Undivided Responsibility:*** Whereas the responsibility for proper operation and servicing is divided among several manufacturers whose products may be used in a Christmas tree assembly, Cameron assumes the full responsibility for the All-Cameron tree.

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Pucalpa on upper Ucayali River, Peru.

Condor S.P.A. (Shell).—80 miles, planned, Genoa to Rho, near Milan, Italy.

Direccion General de Yacimientos Petroliferos Fiscales.—409 miles, under way, Plaza Huincul to Bahia Blanca, Argentina.

Iraq Petroleum Co., Ltd.—556 miles, 30-32-in., under way, Kirkuk, Iraq, to Banias, Syria, 1952; Bechtel-Kirkuk, contractor.

Middle East Pipelines, Ltd.—800 miles, 34-36-in., planned, Iran to a Levantine port.

Petroleos Mexicanos.—160 miles, 10-in., under way, Minatitlan to Salina Cruz, Mexico.

Petroleos Mexicanos.—145 miles, 12-in., considered, 18 de Marzo field via Reynosa to Monterrey, Mexico.

Shell Caribbean Petroleum Co.—11 miles, 16-in., authorized; Bachaquero (north) to Lagunillas, Venezuela, 5-51.

Shell Caribbean Petroleum Co.—165 miles, 30-in., authorized; Palmarejo to terminals on the Paraguana Peninsula (Cardon and Las Piedras, Venezuela), 12-51.

Foreign Products Pipe Lines—Planned and Under Way

Colombia Ministry of Petroleum.—90 miles, 6-in., planned, Puerto Berrio to La Dorada, Colombia.

Colombia Ministry of Petroleum.—103 miles, 4-in., planned, Puerto Berrio to Medellin, Colombia.

Colombian Ministry of Petroleum.—75 miles, 4-in., planned, Buena Ventura to Cali, Colombia.

Estrada de Ferro Santos Jundiai.—32 miles, 10-in., under way, Santos to Sao Paulo, Brazil; Techint, contractor.

Estrada de Ferro Santos a Jundiai.—32 miles, 18-in., under way, Santos to Sao Paulo, Brazil (fuel oil line); Techint, contractor.

Northern Pipe Line, Ltd.—300 miles, 10-in., planned, Montreal, Que., to Toronto, Ont., Canada.

Petroleos Mexicanos.—160 miles, 10-in., under way, Minatitlan to Salina Cruz, Mexico.

State of Cundinamarca, Colombia.—120 miles, planned, Puerto Salgar, to Bogota, Colombia.

Foreign Natural-Gas Pipe Lines—Planned and Under Way

Azienda Generale Italiana Petroli.—Under way, Lodi to Milan, Italy.

Azienda Generale Italiana Petroli.—Under way, Lodi to Turin, Italy.

Azienda Generale Italiana Petroli.—Under way, Lodi to Genoa, Italy.

Direccion General del Gas del Estado.—310 miles, 8-in., under way, Plaza Huincul to Neuquen, Argentina, to the vicinity of General Conesa, Argentina.

Direccion General del Gas del Estado.—62 miles, under way, Comodoro Rivadavia to Caleta Olivia, Argentina.

Northwest Natural Gas Co.—950 miles, 24-in., planned, Alberta fields to Vancouver, B. C., Seattle, Wash., and Portland, Ore.

Petroleos Mexicanos.—205 miles, 16-in., considered, Monterrey to Torreon, Mexico.

Petroleos Mexicanos.—260 miles, 20-in., considered, Monterrey to Tampico and Poza Rica, Mexico.

Petroleos Mexicanos, Mexican Gas Co., and Industrial Gas Co.—600 miles, planned, Reynosa, Tamaulipas, to Mexico City, D. F.

Venezuela Atlantic Transmission Corp.—195 miles, 10-12-16-in., planned, El Placer near Las Mercedes, State of Guarico to Caracas, La Guaira, Maracay, and Valencia.

November Gas Sales Up

Natural gas sales during November totaled 3,326 million therms, an increase of 15 per cent over the 2,813 million therms sold in November, 1949, according to the American Gas Association. Sales for the year to November increased 17.9 per cent over last year.

Digs 20" x 42" trench at 50' to 75' per hr.*

*Includes lowering pipe into trench with trench hoe boom

Backfills own trench at 350' to 400' per hr.

NEW low-cost Bantam® Trench Hoe, with simple, fast-change backfill blade attachment, makes quick work of "101" scattered jobs around oil fields and refineries. Above production figures, reported by leading utility company, are typical of the savings this truck-mounted Bantam can achieve for you on short pipeline trenching, drainage ditches, foundations, slush pits and similar work. See your Bantam distributor or write us direct for complete information on this new job-proved trenching-backfilling tool for oil fields.

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Costs less . . . travels 35 m. p. h.
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RADIO-TELEPHONE BY HINDERLITER SAVES DAY

HINDERLITER salesman Blondie Larson shows how, in a matter of minutes, he started a needed part on its way to the Scurry Field and thereby saved days of "down-time" at a well.

Last November an operator in the Scurry Field of West Texas was in a jam. He had a well out of operation. At his supply store he wasn't able to get a particular part and was told that it would be several days before a new shipment arrived.

Just then he met Blondie Larson, HINDERLITER salesman working out of Odessa. When Blondie heard of the dilemma he walked to his parked car, called the HINDERLITER factory in Tulsa by radio-telephone and the needed part was on its way to the supply store by air freight within an hour.

The widely scattered operations of the oil industry often make contact by telephone difficult or even impossible. That's why HINDERLITER customers find it so convenient to use HINDERLITER radio-telephones when service or equipment is needed. No matter where he may be in the field, your friendly HINDERLITER salesman is still as near as your telephone. For complete information on how to profit from HINDERLITER fast service, discuss it with your HINDERLITER salesman on his next visit or contact the factory at Tulsa. Adv.

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H. K. Porter Company, Inc.
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Among the Drilling Contractors

Pike to Ship Rig for Baja Calfornia Test

T. P. Pike Drilling Co. is preparing a heavy-duty, diesel-powered rotary rig for shipment to Baja California, where it will be used in drilling a deep test for Petroleos Mexicanos. The rig probably will be moved by barge from the Los Angeles area to the west coast of Baja California, and thence by truck to the drilling site near San Ignacio, about halfway down the peninsula.

The drilling site is in an isolated area in extremely rugged terrain and is expected to present many difficulties in trucking access. Although all plans have not been completed, the contractor may build an airstrip at the well site and fly crews and supplies from Long Beach. Drilling is expected to get under way during February.

The first of a series of wells which this contractor is drilling for E. W. Pauley in Tamaulipas, Mexico, has reached a depth of 8,500 ft. where a string of 5½-in. casing has been cemented.

Permian Basin Drillers Name Bayless Chairman

Fred Bayless, Big Chief Drilling Co., Odessa, Tex., has been elected chairman of the Permian Basin chapter of the American Association of Oilwell Drilling Contractors. He succeeds H. W. Davidson, Davidson Drilling Co., also of Odessa, now vice president of the general association for the West Texas and New Mexico region.

Other newly elected chapter officers include Robert C. Schmidt, Loffland Brothers Co., Midland, vice chairman, and Fred J. Agee, Postelle Drilling Co., Odessa, secretary.

Postelle Forms Company

J. F. Postelle, Odessa, Tex., drilling contractor, has formed the Postelle Drilling Co., under which name all his contracting business will be conducted. Previously, since 1930, he operated as an individual. The new company involves no change in management.

Carmack Drills for Self

Harold C. Carmack, formerly associated with Loffland Brothers Co. as superintendent of Rocky Mountain operations, has entered the drilling contracting business for himself. He now has a rig working on well-deepening jobs for Sharples Oil Corp. in the Rangely field, northwestern Colorado.

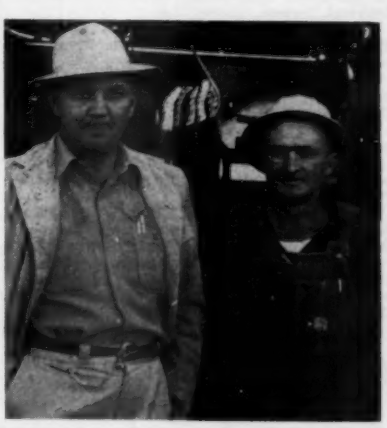
Chicago Corp. Disposes Of Loffland Interests

R. W. Wire, president of Loffland Brothers Co., with headquarters at Tulsa, has announced that interests of Chicago Corp. in the company, which were acquired several years ago, have been acquired by other owners of the company. No change in the present management or policies of the conmpany is contemplated, he declared.

Duncan Drilling Co., Big Spring, Tex., is starting a projected 4,800-ft. test for Sun Oil Co. at a wildcat location 7 miles southeast of San Angelo, in Tom Green County, West Texas. Location is on Sun's Frank Holik lease in Section 91, District 11, SPRR Survey.

Big West Drilling Co. holds contract on the G. H. Vaughn Production Co. 1 Campbell, a location for a 10,700-ft. wildcat, 3 miles south of Midland, in Section 16, Block 39, Township 2, Midland County, West Texas.

Lewis Drilling Co. is starting up at its 1 Fair, 2 miles east of Richardson pool and 2 miles southeast of the 1 Sheppard, in SW SW SE 22-22-11, Stafford County, Kansas.



J. M. Butler (left), toolpusher, and Roy Lynch, driller, on a rig which Rowan Drilling Co., Fort Worth, has working for Amerada Petroleum Corp. in a south extension area to the Yarbrough-Allen field, Ector County, West Texas.

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HYDRAULIC JACKS

Dependable performance, day after day on difficult jobs, produces reports like these from Simplex Hydraulic users. Engineered for faster, safer jacking, these jacks include such features as leakproof high pressure seals of Neoprene; non-sticking ball valves; smooth acting ram of SAE X1112 steel — plus many others. Eight models; capacities from 3 to 100 tons — all safety-tested to 50% over rated capacity.

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PALO ALTO CALIF.

Williams-Copeland, Inc., Tulsa, is starting a second well for The Texas Co. in recently opened North Mount Hope pool, Payne County, Oklahoma. The new well is 1 Pickering, SW SW NW 29-19n-4e, about ¾ mile west of The Texas Co.'s discovery well, completed as Skinner sand producer at a total depth of 3,691 ft.

Rundell Drilling Co. is drilling for E. P. Harwell Estate at 3 Morton, NE SW SW 20-17n-7e, in the Drumright field, northwestern Creek County, Oklahoma.

Warren & Bradshaw Drilling Co., Tulsa, has moved a rig to a wildcat location near the Leon townsite in Love County, Oklahoma, where it has a contract for a 6,500-ft. test to be drilled for The Texas Co. Location is for 1 Jackson, NW SW SW 8-8s-2w.

Puckett Drilling Co. is the contractor on a wildcat test being started by W. O. Allen of Tulsa at 1 Moore, SE SE SW 26-22n-3w, in eastern Garfield County, Oklahoma. The location is about 4 miles west of the Polo pool, western Noble County, nearest production.

Reserve Drilling Co., Inc., Great Bend, Kans., has a rig running for Nadel & Gussman on a wildcat location in the Grarock pool area, in southwestern Rooks County, Kansas. The operation is 1 Graham, SE SE SW 29-9-20.

Bodard Drilling Co., Shawnee, Okla., has a rig working in the Horns Corner pool, 8 miles southeast of Holdenville, in central Hughes County, Oklahoma. Current operation is for Hawkins-Brann at 1 Webster, NE NE SW 6-6n-10e.

Creighton Drilling Co., Tulsa, is drilling for **Helmerich & Payne, Inc.**, Tulsa, at a wildcat location east of the North Horns Corner pool in central Hughes County, Oklahoma. The test is 1 Myers, SW SW NE 9-7n-10e.

ROTARY RIGS IN OPERATION*

(United States and Western Canada)

Area—	Week ended 1-15-51	Change week ended 1-8-51	Change week ended 1-16-50
Gulf Coast	535	— 1	+ 20
W. Tex.-N. M.	746	—23	+ 37
Ark.-N. La.-E. Tex.	139	— 8	— 1
Oklahoma	276	— 8	+ 42
Kansas-Nebraska	129	— 7	+ 22
Illinois-Eastern	76	—47	+ 22
Rocky Mountains	117	+ 7	+ 47
Pacific Coast	129	0	+ 1
Total United States	2,147	—87	+190
Western Canada	121	+21	+ 49
Total	2,268	—66	+239

*Courtesy Hughes Tool Co. Trends in drilling activity in the United States as a whole and the Pacific Coast and Illinois-Eastern areas are shown by charts on pages 402 and 403.

Use 'BESTOLIFE for tool joints and casings, or wherever a tight joint is necessary. Prevents pipe threads from galling; allows easy separation of parts. Sold and exported by supply houses throughout the world.

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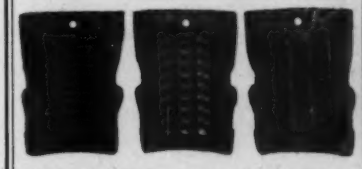

"Varco" buttons, popular for years in rotary drill pipe slips, proved satisfactory and have been adopted and are installed in segments of automatic casing spiders and elevators of various makes. Wickers are removed and holes bored for a maximum number of VARCO casing buttons, to assure uniform and maximum gripping area. Converting buttons for the next smaller casings are available. Write for complete descriptive data.

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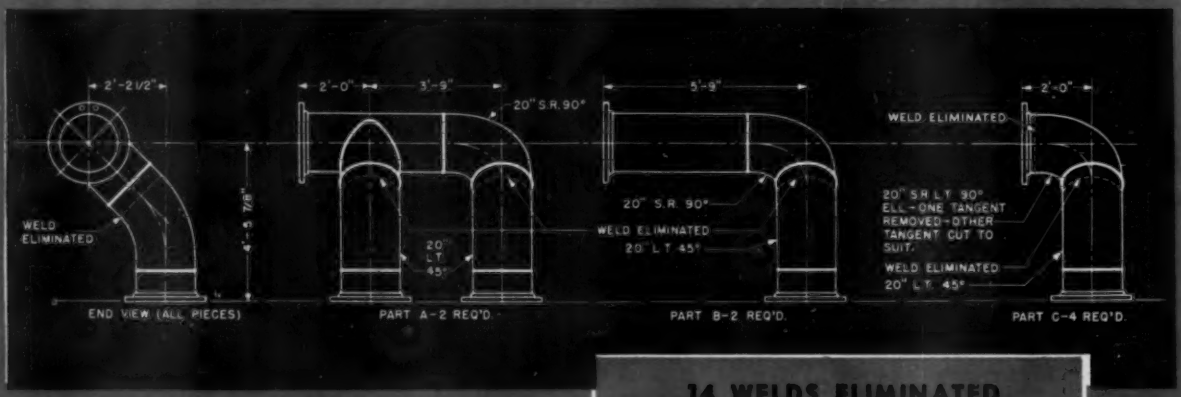

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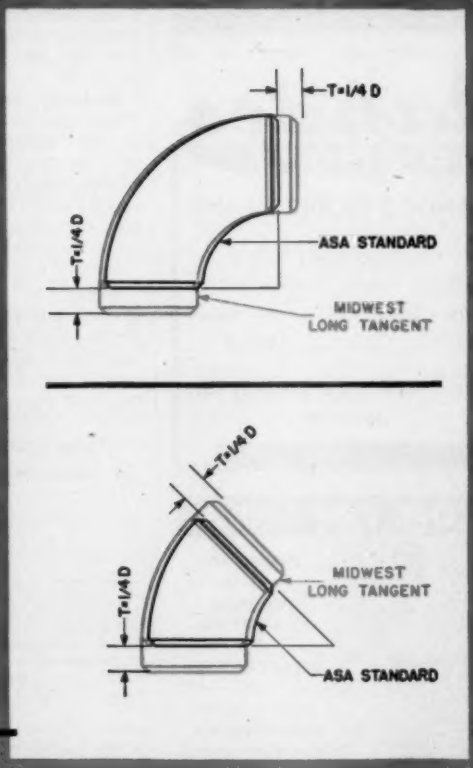
Each of the subassemblies shown above, if made of ASA elbows, would have required an extra nipple with an extra weld at the dotted line. With the Midwest Long Tangents, both the nipples and the welds were eliminated. Reduced material and labor costs made this substantial saving.

Other advantages of Midwest "Long Tangent" Elbows: pipe and fitting lined up more quickly and accurately, weld is removed from point of maximum bending stress, can be sleeved, slip-on welding flanges are more easily used, and they cost no more than standard elbows usually furnished. Ask for Catalog 48.



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NATURAL GAS

New Carbon-Black Plant

CHARLESTON, W. Va.—The new carbon-black plant to be constructed 6 miles east of Shamrock, Tex., will be in operation around May 1, 1951, according to officials of United Carbon Co., Inc. It is planned that the new plant will reach an eventual production rate of 25,000,000 lb. of the furnace-type black per year.

Gas-base furnace blacks of the semireinforcing (SRF) and high-modulus (HMF) types will be produced in the plant, which will cost in excess of $1,500,000. It will be located on the Chicago, Rock Island & Pacific Railway Co. line.

Officials said the new facilities were being built primarily because of the country's lack of carbon-black producing capacity sufficient to take care of the expanded synthetic-rubber program, and to satisfy increasing demand for the product from other consuming industries.

These types of furnace blacks are used in the manufacture of tires, inner tubes, footware, and mechanical goods. They are also used for toning qualities and to obtain greater purity of product by the printing, paint, plastic, fertilizer, and allied industries.

Well-Head Prices Reported

AUSTIN. — The Texas Railroad Commission has reported current market prices being paid at the well head for gas in Panhandle field. Prices ranged from 3.1265 to 5.36 cents per M.c.f. The prices apply to gas sold for light and fuel purposes.

The commission is required by law to determine the market price annually or semiannually through public hearing. It then posts such prices which contracting parties may accept as the market price to be paid for such gas.

Two sellers, Phillips Petroleum Co. and Cree & Rubin, were reported selling gas to Shell Oil Co. for 3.12655 cents per M.c.f. Dunn & Kimberlin were receiving 5.36 cents per M.c.f. from Panhandle Eastern Pipe Line Co.

On pipe-line contract, prices paid ranged from 5.3597 to 8.933 cents per M.c.f. Texoma Natural Gas Co. was the exclusive buyer.

Phillips-Case Action Urged

WASHINGTON.—A demand that the Federal Power Commission set "immediately" a hearing in the Phillips Petroleum Co. natural-gas case has been made by Senator Wiley (R., Wis.).

In a letter to FPC Chairman Mon Walgren, Wiley charged that a hearing on the matter has been postponed seven times, and all but one of the delays has been requested by Phillips.

The commission initiated an investigation of the operations of Phillips under the Natural Gas Act in 1948. Phillips is the exclusive supplier of natural gas to the Michigan-Wisconsin Pipe Line Co. and the Michigan-Wisconsin firm is the only wholesale supplier of gas to Wisconsin distributing companies.

Wiley claims that the price of gas supplied by Phillips to the pipe-line company increased five times between the date the contract was first entered into and the date the first cubic foot of gas was delivered in the state.

"I feel that the Federal Power Commission owes an obligation to the consumers of my state and to the sovereign state itself," Wiley said. He urged that there be no further stalling.

Test Facilities O.K.'d

WASHINGTON.—Mississippi River Fuel Corp., St. Louis, Mo., has received temporary authorization from the Federal Power Commission to construct facilities necessary to test the gas-storage possibilities of the Waterloo (Ill.) oil field.

The temporary certificate authorizes the company to drill and operate not more than seven gas wells and to construct 4 miles of 12-in. transmission line. The facilities are part of a larger project proposed by Mississippi to develop the Waterloo field as an underground storage reservoir for natural gas.

Waterloo field is located in Monroe County, Illinois.

New England Plans Stymied

WASHINGTON. — Application made recently by Northeastern Gas Transmission Co. to supply natural gas to the entire New England area has been refused by the Federal Power Commission.

Gardiner Symonds, president of Tennessee Gas Transmission Co. and chairman of the board of Northeastern Gas. said the decision would be appealed to the courts. The verdict by FPC "can cost New England gas consumers at least $3,000,000 annually in higher gas rates," Symonds said.

Ruling against Northeastern leaves in effect a November order by FPC dividing the New England market between Northeastern and Algonquin Gas Transmission Co., provided the latter should demonstrate that it has an adequate supply of gas. In the original applications, Algonquin proposed to get its supplies through Texas Eastern Transmission Corp. Northeastern said it would be supplied natural gas by its parent company, Tennessee Gas Transmission, and by Transcontinental Gas Pipe Line Corp.

Piedmont Proposal O.K.'d

WASHINGTON. — The Federal Power Commission has affirmed, with certain modifications, the initial decision of a presiding examiner authorizing Piedmont Natural Gas Co., Inc., of Spartanburg, S. C., to serve natural-gas markets in North and South Carolina by constructing a series of lateral pipe lines extending from the system of Transcontinental Gas Pipe Line Corp., Houston.

The Piedmont Natural project includes six lateral lines, aggregating 73.7 miles, to serve the following communities: Charlotte, Winston-Salem, Greensboro, Salisbury, High Point, and Burlington, N. C.; and Greenville and Spartanburg, S. C. Estimated cost of the project is $1,200,000.

Applications of two other companies which sought to render area wide service in the Carolinas were denied insofar as they relate to serving the markets Piedmont Natural was authorized to supply. However, the proceedings involving these two companies—Carolina Natural Gas Corp., of Charlotte, N. C., and Public Service Co. of North Carolina, Inc., of Gastonia, N. C.—were ordered reopened to afford those companies an opportunity to file amendments to their applications eliminating the communities which Piedmont Natural was authorized to serve.

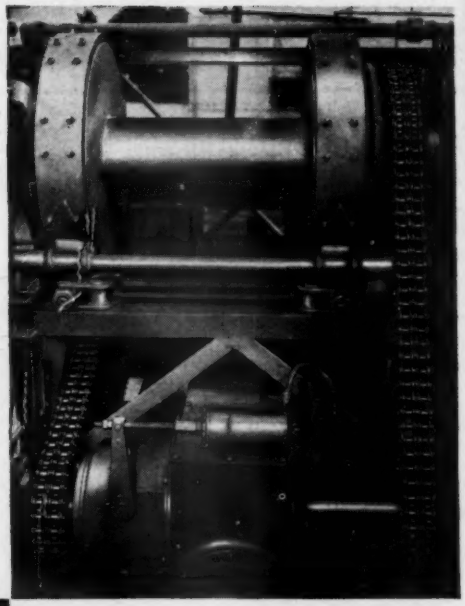
Companies Propose Merger

WASHINGTON.—Equitable Gas Co. has asked the Federal Power Commission to authorize acquisition by Equitable of all natural-gas facilities of its subsidiary, Pittsburgh & West Virginia Gas Co. Both companies have main offices in Pittsburgh.

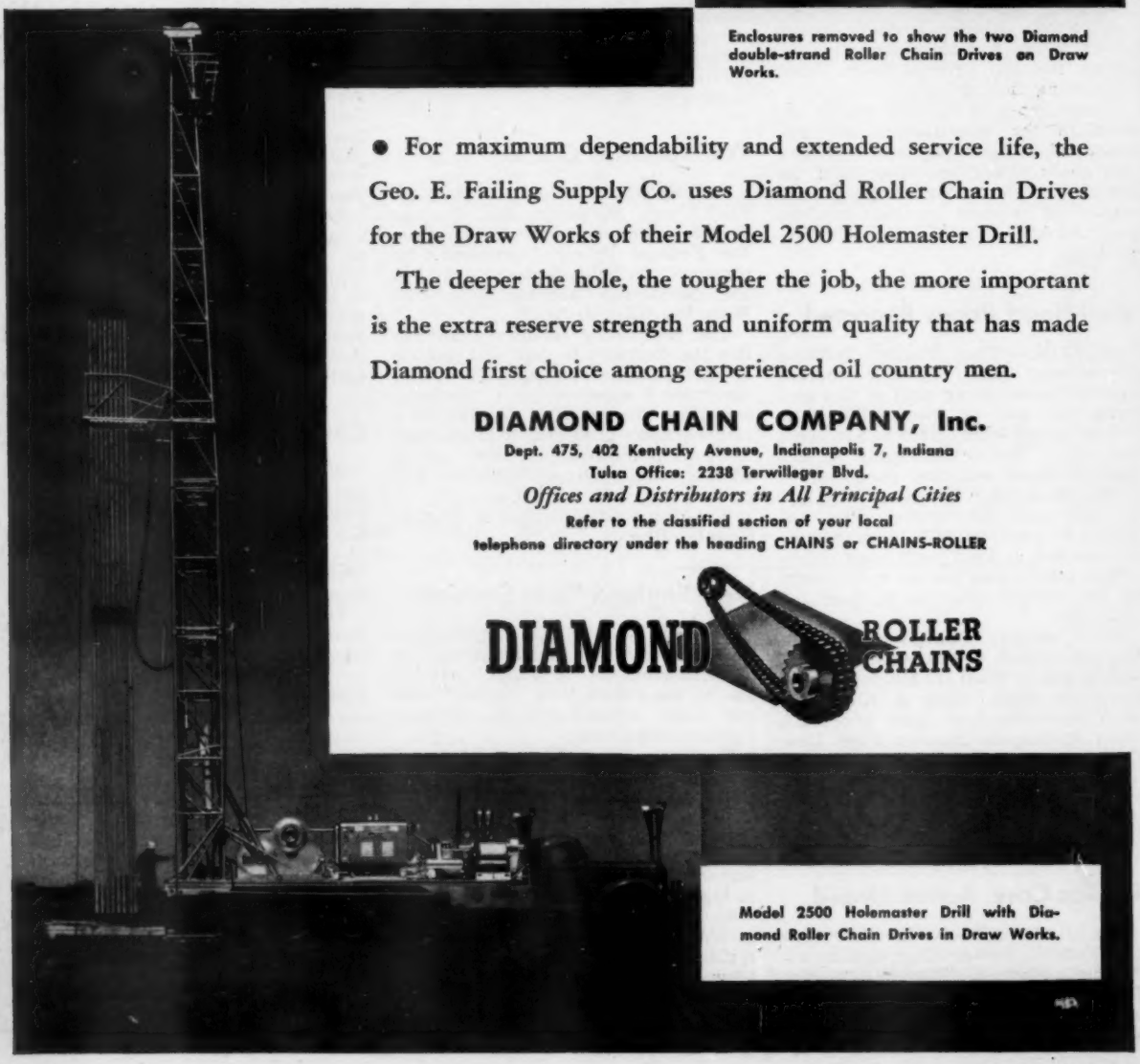
The joint application said that facilities of both companies are interconnected and integrated and are operated as a unified part of the Equitable Gas system. The merger would eliminate the necessity of maintaining Pittsburgh & West Virginia as a separate corporation, thus permitting a reduction in operating expenses.

Pittsburgh operates wholly within West Virginia and is engaged in the purchase, production, transmission, storage, distribution, and sale of natural gas. The bulk of the gas which it purchases and produces is sold and delivered at the West Virginia-Pennsylvania state line to Equitable. Pittsburgh & West Virginia serves more than 8,000 customers in West Virginia, principally in Grafton and Shinnston.

DIAMOND ROLLER CHAINS Add Extra Dependability on *Failing* HOLEMASTER



Enclosures removed to show the two Diamond double-strand Roller Chain Drives on Draw Works.



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REPORTS ON

Exploration and Drilling

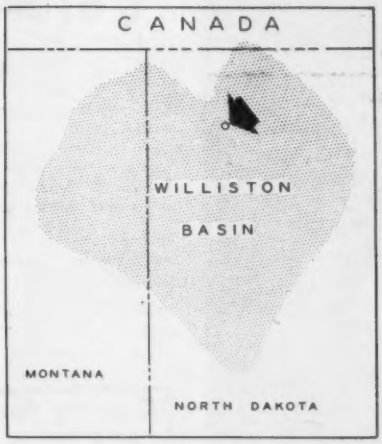
North Dakota Wildcat Grows Wilder

APPROACHING a depth of 11,500 ft., Amerada Petroleum Corp. 1 Iverson, 6-115n-95w, Williams County, North Dakota, is now well into the deep unknown. Located near the center of the deeper portion of the Williston basin on a large, complex, and little-known uplift named the Nesson anticline, this wildcat is believed to be drilling in the Devonian. However, the age of the miscroscopic fossils recovered near current depth has not been definitely established so that the bit might be cutting the Silurian (questionably present in this area) or the Ordovician.

Amerada's well is only 6 miles north and east of The California Co. 1 Kamp which was abandoned 12 years ago at 10,281 ft. in the Devonian. The more important subsea picks in the 1 Iverson, which since topping the Mississippian-Big Snowy group have been running roughly 200 ft. higher than those tops called in the 1 Kamp, are as follows: Cretaceous - Dakota —2,224 ft., Jurassic-Sundance —2,797 ft., Triassic-Spearfish —3,600 ft., Mississippian-Amsden (?) —4,420 ft., Big Snowy —4,620 ft., Madison (?) 5,905 ft., Devonian-Three Forks —7,532 ft., and Jefferson —7,720 ft.

Amerada's wildcat has been of special interest since it was made known that it had recovered a pint of oil (the first oil to be recovered in North Dakota) from a Devonian limestone somewhere around —8,200 ft. subsea. The significance of this pint of oil lies in the fact that it proved that the Williston basin is not barren. Geologists have long thought that this basin should produce oil, but failures on likely looking prospects had cooled exploratory efforts until, following Alberta's Leduc discovery, the possibility of finding oil-bearing reef buildups was recognized.

The heart of the Williston basin, roughly pictured in the accompanying sketch, is North Dakota's deepest portion of a sedimentary unit which deepens gradually westward from the Canadian shield in Minnesota and then swings up into Canada to include the southwest corner of Manitoba, the southern half of Saskatchewan, and most of Alberta. Many geologists believe that the shallower portions of the basin, that is, back



from the edges of this deep heart, offer better hunting grounds than the deeper portion. These geologists are counting on the existence of a depositional environment during Devonian time similar to that which existed in the Alberta portion of the basin to the northwest.

The over-all picture of the North Dakota portion of the Williston basin is one favorable for the accumulation of oil. From the limited data available it is known that there is a gradual loss of sedimentary section going from west to east across the state. This loss was caused by truncation and over-lap or non-deposition, either of which may form favorable traps. This eastward overlap indicates the probable presence of large wedge belts of porosity, especially in view of known regional unconformities.

Intensely watched by North Dakota prospectors is the work being carried on in southwestern Manitoba just northeast of the deeper portion of the Williston basin. So far there have been no successes chalked up, but the failures have not condemned the area. Souris Valley Oil Co. has drilled three wells in this locality. The first two found water in vuggy porosity at the top of the Mississippian, and the third, currently suspended, showed oil-staining in Mississippian rocks with pin-point porosity and reported the first oil shows in the province. California-Standard Co. is drilling below 5,000 ft. on a wildcat which is prepared to go to the basement, expected around 6,000 ft., if necessary. *Philip C. Ingalls.*

HIGHLIGHTS OF WEEK'S DEVELOPMENTS

WEST TEXAS.—Texas Co. 1-X State, 1950 Ellenburger discovery and the Permian Basin's deepest oil well, has been plugged back and completed as a flowing well from the Devonian. Former production from the deeper horizon was about 15 bbl. daily, plus water; recompletion potential was 391 bbl. daily through 10/64-in. choke. Sunray Oil Co. 1 Brown has established flowing production from a reef limestone in southeast Dawson County, and in the northeast corner of the same county, Snowden's 1-32 Dean logged additional pay in the Spraberry and had recovered 1,100 ft. of free oil on the last drill-stem test.

ROCKY MOUNTAIN REGION.—California Co. is running casing at its 1 Unit, wildcat in Uintah County, Utah, after it filled about 4,000 ft. with 32.6°-gravity oil on drill-stem test at 5,249-70 ft. The wildcat also found gas estimated at 8,000,000 cu. ft. per day from the upper Green River at 4,345-75 ft. In North Dakota, Amerada Petroleum Corp. is preparing to run casing for further testing at its 1 Iverson, Williams County wildcat. The well is now below 11,398 ft.

SOUTH LOUISIANA.—No official gage has been made at Sun Oil Co.'s discovery in Calcasieu Parish, but the wildcat (1 Brooks) flowed 150 bbl. of 46°-gravity oil per day from 10,868-80 ft.

MISSISSIPPI.—Three producing zones have been indicated at Southern Production Co.-Helis 1 Armstrong, Adams County new strike. The wildcat was completed as a Barksdale (Wilcox) discovery, producing from 6,510-26 ft., but showed possibilities at 6,292-96 ft. and 6,304-06 ft.

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California

Ventura Avenue Field Is Extended Half Mile East

LOS ANGELES.—The eastern limits of Ventura Avenue field, coastal California, were extended almost ½ mile more upon completion of Lloyd Corp., Inc. 2 Sexton. This producer and the same operator's 1 Sexton, plus routine stepouts, have resulted in the field's eastern productive limit being extended about 1½ miles in the past 6 months.

The second extensioner, located in Section 20-3n-22w, was completed flowing at the rate of 600 bbl. daily from perforated intervals between 11,715-12,200 ft. Hole had been drilled to 12,611 ft. but was plugged back to 12,255 ft. Upon completion of 2 Sexton the rig was moved ½ mile further east for a third extension attempt, its 1 William Sexton.

At Telephone Hills in Kern County, Pacific Western Oil Co. abandoned its No. 72-31 at 5,891 ft. This was the fourth failure the company has drilled in the vicinity of its 3,500-bbl. daily discovery completed last June. Located in Section 31-30s-22e, just south of Belgian Anticline field, the area is highly faulted.

At another 1950 discovery, Taylor Canyon in the hills north of western Cuyama Valley, the Hancock Oil Co. 33-31 Hancock Bishop has started flowing at the rate of 440 bbl. daily. The well, a northwest offset to the discovery, earlier in the month was completed as a pumper. Universal Consolidated Oil Co. has announced it will soon start an east offset to the discovery.

On the extreme southern end of San Joaquin Valley, in the Pleito Hills area, Humble Oil & Refining Co. is slated to drill a 10,000-ft. wildcat. Exact location has not been announced but it reportedly will be in 11n-21w, in the mountains southwest of Wheeler Ridge.

Another wildcat started during the week was Richfield Oil Corp. A-2 DeKoch, located about 3½ miles southwest of Morales Canyon production in Section 18a-11n-28w, Cuyama Valley. In Kern County and midway between Elk Hills and Midway Sunset, Standard Oil Co. of California has started its 68 Van Wert. It is in the Rudisil anticline area, in Section 26-30s-22e.

Kern County Land Co., whose holdings annually yield some 20,000,000 bbl. of crude, has staked a 10,000-ft. development well in South Coles Levee. The well will be the company's first attempt to develop its properties as an operator; heretofore its policy has been to lease its properties for exploration and development.

CALIFORNIA WILDCAT FAILURES

Fresno County, Kerman area: Signal Petroleum Co. of Calif., Ltd., 1 Janss, 31-13s-17e, dry, top Kreyenhagen 4,748 ft., TD 5,500 ft., elev. 210 ft.

Kern County, south Mountain View area: The Texas Co. 1 DiGiorgio, 3-31s-19e, dry, bottomed in granite, TD 5,063 ft., elev. 494 ft.

Monterey County, east San Ardo area: Standard Oil Co. 85-9 Alexander, 9-23s-11e, dry, TD 2,812 ft., elev. 932 ft.

San Luis Obispo County, Cholame area: C. W. Colgrove 83-17 Jack, 17-25s-16e, dry, TD 2,810 ft., elev. 1,375 ft.

Northwest Cuyama area: Universal Cons. Oil Co. 87A-36 Humble, 36-32s-19e, dry, top Cretaceous 2,105 ft., TD 2,256 ft., elev. 2,943 ft.

Tehama County, Orland area: Standard Oil Co. 2-1 Orland Comm., 31 projected 23-2w, dry, TD 3,735 ft., elev. 160 ft.

CALIFORNIA SUCCESSFUL WILDCATS

Orange County, new field discovery south of Anaheim: Patrick A. Doheny 1 Holsinger, 22-4s-10w, pumped 50 bbl. per day of 8°-10°-gravity crude through 165 ft. of perforations above 4,503 ft., plugged back to 4,505 ft., TD 4,631 ft., elev. 147 ft.

Ventura County, ½-mile east extension to Ventura Avenue field: Lloyd Corp., Ltd., S-2 Lloyd Corp., 20-3n-22w, flowed

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at the rate of 600 bbl. per day through perforations at 11,715-11,895, 12,150-70, 12,180-12,200 ft., 34° gravity, 0.4 per cent cut, 16/64-in. bean, plugged back to 12,611 ft., elev. 1,195 ft.

Ohio Fields

Knox County Offset Finds Both Oil and Gas Pays

COLUMBUS. — The National Gas & Oil Co. 1 Ollie Melick, Section 9, Jackson Township, Knox County, a southwest offset to the 1 Oddie Stricker, found the Clinton at 2,961-3,007 ft. with gas pays all through and an oil pay at 2,984 ft. The total gage was 2,000,000 cu. ft., and the well was tubed natural.

Another producer was completed in the Brownsville pool in Licking County. The Midland Oil Co. 8 Samuel Cooperider, Section 3, Bowling Green Township, came in with good showing natural in the Clinton at 2,858-88 ft. and made 120 bbl. in 24 hours after a 140-qt. shot.

L. Shorts 2 Osborn Hibbets, Section 21, Union Township, Knox County, had a fair oil showing in the Clinton, found at 2,817-70 ft. After shot, the well made 30 bbl. and 1,000,000 cu. ft. gas in 24 hours.

Ideal Natural Gas Corp. has started on its wildcat to test the Clinton on the D. C. Maxwell tract in Section 7, Monroe Township, Perry County.

New locations for the week totaled 28 from 14 counties, while 15 wells were completed.

OHIO WILDCAT FAILURE

Summit County, Springfield Township: Ed Obermiller et al 1 S. C. Young, Lot 27, Clinton 4,251-4,350 ft., TD 4,400 ft.

One System for Complete PARAFFIN CONTROL

FOR ROD WELLS-SURFACE LINES-FLOWING WELLS

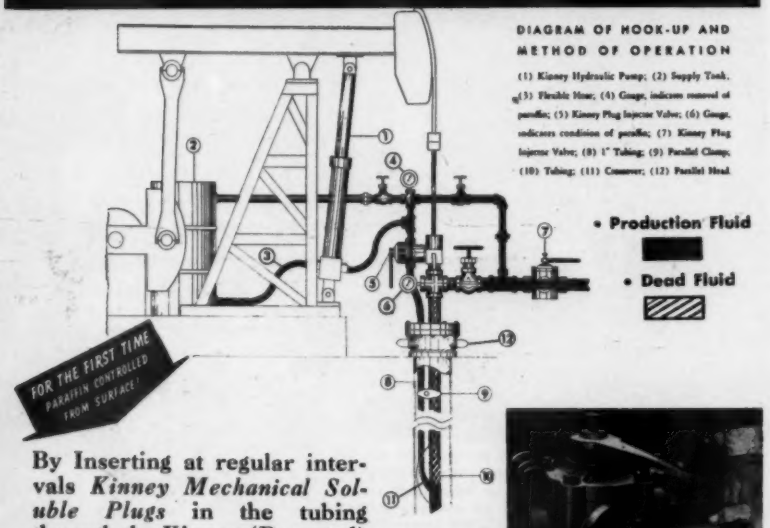
DIAGRAM OF HOOK-UP AND METHOD OF OPERATION
(1) Kinney Hydraulic Pump; (2) Supply Tank; (3) Flexible Hose; (4) Gauge, indicates removal of paraffin; (5) Kinney Plug Injector Valve; (6) Gauge, indicates condition of paraffin; (7) Kinney Plug Injector Valve; (8) 1" Tubing; (9) Parallel Clamp; (10) Tubing; (11) Connector; (12) Parallel Head
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Southwest Texas

Drill-Stem Test Running On Gregory Field Stepout

CORPUS CHRISTI.—The Texas Co. has perforated from 9,755-65 ft. and is now running a drill-stem test in 1 Joseph Green estate, wildcat venture 2 miles southwest of Gregory field, San Patricio County. The well is at a depth of 10,585 ft. and operator set 7⅝-in. pipe at 9,780 ft. for completion attempt. Location is in T. T. Williams Survey, Abstract 286.

Sunray Oil Corp. is under way at a deep Wilcox wildcat that will hold close attention of operators in the southeastern sector of McMullen County. The 10,000-ft. venture is 1 Hostetter, Justo Corona Survey 28, Abstract 1122, 2½ miles south of Brazil.

Bass & Vessels 1 Arutro Pena Heirs, wildcat test in Share G, Santa Teresa grant, Starr County, tested at the rate of 4 bbl. of oil per hour through ¼-in. choke in the 5,500-ft. sand. No test has been run on the gas-condensate sand in the 4,500-ft. horizon, but tanks are now being erected. The new discovery is bottomed at 6,001 ft. with 5½-in. production string set at 5,570 ft.

Ben D. Marks, Tr., is preparing to drill a 2,400-ft. wildcat test 2 miles east of Marks field in Starr County. The test, C-1 Downs Royalty Corp., is located in Block 59, El Javali grant.

Curtis Singleton Drilling Co. 1 J. O. Johnson, Kleberg County wildcat 2½ miles southeast of Kingsville, is coring at 7,170 ft. on an 8,400-ft. contract. This test is located in Lot 12, Block 30, Klebert Town & Improvement Co. Subdivision, and is 50 ft. southeast of an 8,895-ft. Stanolind dry hole, which blew out and was junked after finding 17 oil and gas shows.

Humble Oil & Refining Co. E-1 John G. Kenedy, Jr., wildcat in Tiocolas Pasture, El Paistle grant, is shut down for repairs at 7,500 ft. The wildcat is scheduled to go to 12,500 ft.

The 44 new locations include 13 wildcat starts, 1 each in Brooks, Hidalgo, Starr, Guadalupe, and Milam counties, 2 in Zapata County, and 3 each in Duval and Starr counties. There were three successful exploratory wells completed, one each in Atascosa, Frio, and Webb counties, while 12 were dry, 1 each in Bexar, Frio, Kendall, Milam, Williamson, and Webb counties, and 2 each in Wilson, Duval, and San Patricio counties.

SOUTHWEST TEXAS (DISTRICTS 1 AND 4) SUCCESSFUL WILDCATS

Atascosa County: Oil discovery—McFarland Drilling Co. 5 Henrietta Krisch, et al, J. Durks Sur. 1207, 3 mi. N of Poteet. TD 3,601 ft., perf. 3,559-69 ft. (Anacacaho lime), IP: 126 bbl. oil per day, ¼-in. choke, 44° gravity.

Frio County: Oil discovery—Milam Drilling Co. 1 W. L. Pickens, Austin & Williams Sur. 694, A-10, 2 mi. W of Hindes, TD 5,620 ft., open hole 5,598-620 ft., IP: 74 bbl. oil per day on pump, 35.5° gravity.

Webb County: Oil discovery, "Tal Vez"—Clardy & Barnett 1 O. G. Kirkpatrick, CCSD&RGNG RR Sur. 26, 20 mi. SW of Freer, TD 2,350 ft., perf. 2,295-300 ft., IP: 22 bbl. oil per day on pamp, 40.8° gravity.

SOUTHWEST TEXAS (DISTRICTS 1 AND 4) WILDCAT FAILURES

Bexar County: Traders Oil Co. 1 Pfeil, Eligio Gortari Sur. 2, A-5, dry, TD 994 ft.

Duval County: Cox & Hamon 2 J. Dunn estate, AB&M Sur. 379, A-34, 8 mi. W of Realitos, dry, TD 4,020 ft.

W. E. Fox Trust & F. William Carr 1 Clara J. Hoehm, Lots 1 and 2, Addition 3, Realitos Subd., Copita Farm & Garden tracts, 9 mi. SE of Realitos, dry, TD 5,730 ft.

Frio County: Humble Oil & Refining Co. 1 Naomi H. Dulling, D. D. Harrigans

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Leona Valley Farm Subd., C. McKinley Sur., A-515, dry, TD 4,350 ft.

Kendall County: C. G. Newton 1 Ed Hiedrick, J. O. Blair Sur. 64, 3 mi. SW of Kendalia, dry, TD 1,040 ft.

Milam County: J. D. Stubblefield 1 R. F. Lindhorst, J. J. Acosta Sur., 13 mi. SW of Buckholtz, dry, TD 1,400 ft.

San Patricio County: Kirkwood & Co., et al, 1 Auld & Goldston, M. McAuley Sur., A-13, dry, TD 7,297 ft.

Arnold O. Morgan D-2 R. H. Welder, Sec. 78, Eliza H. Welder Ranch Subd., dry, TD 7,519 ft.

Webb County: Ramon S. Waldron A-1 Benavides, Cole Petroleum Co. Subd. of Josefa Cuellar grant, 3 mi. N of Bruni, dry, TD 3,088 ft.

Williamson County: C. J. Stalmach 1 Frank Prince, et al, Parthenia Coursey Sur., 2½ mi. SE of Taylor, dry, TD 608 ft.

Wilson County: G. N. McNab 1 Frank Teltschik, Louis Menchaca Sur., A-18, dry, TD 3,510 ft.

A. W. Phillips 1-A Susie D. Lodenz, Morris May Sur., A-204, 4½ mi. E of Stockdale, dry, TD 3,114 ft.

Mississippi

Wilcox Discovery Is Made By Adams County Wildcat

JACKSON.—Southern Production Co.-William Helis B-1 George Armstrong, 19-6n-2w, Adams County wildcat, has been completed as a new Wilcox discovery in the Barksdale zone. On a 12-hour potential test, this well flowed at the rate of 194 bbl. of 35°-gravity oil per day through 8/64-in. choke. Producing was through perforations at 6,510-16 and 6,518-26 ft. Tubing pressure was 470 psi. Prior to completing the well, operators perforated the casing at 6,530-40 ft. and the well flowed at the rate of 11 bbl. per hour through 12/64-in. choke and 5 bbl. per hour on 9/64-in. choke. A previous test in open hole indicated another producing zone at 6,292-96½ ft. and 6,304-06 ft.

Seven miles southeast of the town of Lumberton, Forrest County, I. P. LaRue 1 Creosote Oil Corp., 7-1s-13w, is being completed as a gas discovery in the Upper Tuscaloosa. The wildcat was drilled to a total depth of 9,010 ft. Casing was perforated at 7,722-26 ft., and tubing swung at 7,700 ft. Operator then commenced swabbing and the well flowed gas. After testing for 2 days, the tubing pressure built to 2,500 psi. on 11/64-in. choke. The gas is being flared while the well is being cleaned and no evidence of any condensate has been detected.

In Jefferson County, Sinclair Oil & Gas Co. has a possible gas discovery from the Lower Tuscaloosa, at its 1 R. T. Liddell, et al, 67-9n-1e. Operator ran a drill-stem test at 10,052-64 ft., using ½-in. chokes and 3,000 ft. of water cushion. Recovery was gas and water cushion. When tool was pulled, recovery was 630 ft. of mud cut with water, 300 ft. of clear water cushion and 30 ft. of condensate. Bottom-hole pressure was 4,350 psi. flowing. Operators are now coring ahead in the wildcat.

In northern Wayne County, approximately 2¾ miles north and slightly west of production at Yellow Creek field, Ralph Stanley and S. B. Daws 1 Masonite Corp., 24-10n-8w, cored sands with shows in the Eutaw section. Core cut at 5,038-45 ft. recovered 3 ft. of porous sand with good oil odor. Four attempts to drill-stem this sand have failed to get a packer or packers to hold. Core cut at 5,050-52 ft. recovered 1 ft. of sand with show of oil and 1 ft. of sand with show of oil and streaks of shale. At last report, operators were coring ahead.

MISSISSIPPI SUCCESSFUL WILDCAT

Adams County: Oil discovery — Southern Production Co. & William Helis B-1 George Armstrong, 19-5n-2w, TD 6,763

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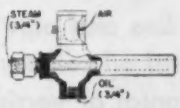

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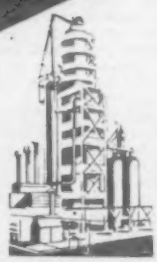

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ft., perf. Barksdale (Wilcox) 6,510-16 ft. and 6,518-26 ft., IP: 104 bbl. oil per day, 8/64-in. choke, TP 470 psi., 35° gravity.

ALABAMA WILDCAT FAILURE

Baldwin County: Gulf Refining Co. 1 B. D. Simison, et al, 43-1n-1e, dry, TD 10,008 ft.

Texas Gulf Coast

New Production Opened by Several Recent Wildcats

HOUSTON.—Production string has been set at 8,320 ft. in Kirby Petroleum Co. 1 R. T. Buchanan, et al, Wilcox discovery in Indiola RR Survey, Abstract 204, and operator is waiting on cement before perforating for production tests. Before running 5½-in. casing a core from 8,127-99 ft. recovered approximately 34 ft. of oil sand. Gas sand was encountered at 8,190-98 ft. Electric log was run in the well and operator reported oil sand from 8,125-61 ft. Just below gas section, stringer sands showing oil were logged with water sands below to total depth of 8,517 ft.

In Calhoun County, electric log has indicated possible production in three zones at Falcon Seaboard 1 Maude B. Traylor, wildcat in Phillip Dimmit Survey, Abstract 11, 10 miles northeast of Port Lavaca. Zones to be tested are 8,000-81 ft., below 8,300-ft. mark, and a zone at 8,400 ft.

New gas pay has been opened in North Dayton field, Liberty County, at Corley & Geiselman, et al, 1 Paraffine Oil Co. on open flow potential, the well flowed at the rate of 10,600,000 cu. ft. of gas per day through perforations at 8,110-20 ft. The new sander is located in Edmond Pruitt Survey, Abstract 488.

Oil production has been confirmed in North Big Hill field, Jefferson County, at Glenn H. McCarthy D-1 W. S. Davidson estate. Through perforations at 8,426-34 ft. the well flowed 240 bbl. of 39.2°-gravity oil per day through a ⅛-in. choke. Tubing pressure was 2,140 psi. The well spots 700 ft. west-northwest of B-1 Davidson, discovery well for the area.

Spindletop field came back into the limelight with discovery of new pay on the northwest flank of the prolific reservoir. Stanolind Oil & Gas Co. B-107 Gladys City Oil & Manufacturing Co. pumped at the rate of 96.36 bbl. of 29°-gravity oil daily plus 11.63 bbl. of water. Drilled to a total depth of 5,190 ft., operator plugged back to 4,809 ft. and perforated for production at 4,766-4,800 ft. The new discovery is located in the John Veatch Survey.

A possible new discovery for Goliad County is Magnolia Petroleum Co. 5 Wilkinson estate, which flowed 7 bbl. of oil in 2 hours on drill-stem test made at 3,207-09 ft. using ¼-in. choke. Working pressure reached 112 psi. in 15 minutes, and tubing pressure varied from 325-350 psi. Operator will continue to test the wildcat, which is located in the William P. Miller Survey, 2½ miles north of Berclair townsite.

The 26 new locations include 10 wildcat starts, 1 each in Bee, DeWitt, Jackson, Victoria, Fort Bend, Harris, Newton, Orange, Washington, and Wharton counties. There were 13 successful exploratory wells completed, 1 each in Bee, Goliad, Harris, Jefferson, Liberty, and Wharton counties, 2 each in Jackson and Victoria counties, and 3 in Calhoun County.

TEXAS GULF COAST (DISTRICTS 2 AND 3) SUCCESSFUL WILDCATS

Bee County: Gas discovery—Bridwell Oil Co. 1 J. S. Hall, Anne Burk Sur., A-5, 2 mi. NE of Youngeen field, TD 4,473 ft., perf. 3,700-03 ft., IP: 12,800,000 cu. ft. of dry gas per day, 3/16-in. choke, TP 1,495 psi.

Calhoun County: Gas-condensate discovery, "Traylor Ranch"—Lamar Hunt Trust estate 1 M. T. Brooking, Thos. Cox Sur., TD 9,500 ft., perf. 8,858-75 ft., IP: 5,000,000 cu. ft. of gas per day plus 17 bbl.

condensate per million cu. ft. of gas, open flow test, SIP 3,700 psi.

Gas-condensate discovery, "Worchester"—John W. Mecom 8 Minnie S. Welder, C. F. Worchester Sur., A-153, 3 mi. NW of Sheriff field, TD 8,917 ft., perf. 6,570-74 ft., IP: 5,350,000 cu. ft. of gas per day, plus 35 bbl. condensate per million cu. ft., ¼-in. choke, TP 2,400 psi.

Gas-condensate discovery—Quintana Petroleum Corp. 1 Jamie Hynes, J. F. de la Fuentes Sur., TD 9,867 ft., perf. 7,789-95 ft., IP: 10,200,000 cu. ft. of gas per day plus 77 bbl. condensate per million cu. ft., open flow, 58.2° gravity, SIP 3,764 psi.

Goliad County: Gas-condensate discovery, "East Hordes Creek"—Frank Michaux 1 Kauffman estate, George Sutherland Sur., TD 8,029 ft., perf. 7,675-710 ft., IP: 1,000,000 cu. ft. of gas per day plus 16 bbl. condensate per million, 7/64-in choke, TP 2,650 psi., SITP 3,000 psi.

Harris County: Oil discovery—Commercial Petroleum & Transport Co. 1 Herbert S. Crawford unit, Christian Smith Sur., A-69, 5 mi. NE of Baytown, TD 8,520 ft., top pay 6,362 ft., perf. 6,362-67 ft., IP: 179 bbl. oil per day, 9/64-in. choke, TP 650 psi., 29.5° gravity.

Jackson County: Gas discovery—John B. Coffee 1 Sample-Appelt, ½ mi. SE of Cordele field, 12 mi. N of Edna, Sylvester Bowen Sur., A-8, TD 5,102 ft., perf. 4,686-91 ft., IP: 1,000,000 cu. ft. of gas per day, ⅛-in. choke, TP 1,850 psi.

Gas discovery—J. M. Huber Corp. 1 William Classen, James Kerr Sur., ¾ mi. N of Collier field, TD 3,359 ft., perf. 2,806-10 ft., IP: 6,000,000 cu. ft. of gas per day.

Jefferson County: New pay at Spindletop—Stanolind Oil & Gas Co. B-107 Gladys City Oil & Mfg. Co., John Veatch Sur., TD 5,190 ft., top pay 4,766 ft., perf. 4,766-4,800 ft., IP: 96 bbl. oil per day, 29° gravity.

Liberty County: New pay at South Liberty—Josey-Nelms-Halbouty 2 E. B. Pickett, M. G. White Sur., A-17, TD 4,636 ft., perf. 3,908-922 ft., IP: 30 bbl. oil per day, TP 150 psi., 25.1° gravity.

Victoria County: Gas discovery, "DePine"—Miller Wells Corp. 1 Josephine & Adela de Pine, John D. Wright Sur., A-125, TD 5,310 ft., perf. 3,950-52½ ft., IP: 2,532,000 cu. ft. of gas per day, ¼-in. choke, TP 1,616 psi.

New pay at East McFaddin—Union Producing Co., et al, Maria J. Traviesa Sur., A-114, TD 6,051 ft., perf. 5,900-06 ft., IP: 153 bbl., 41° gravity, TP 1,030 psi.

Wharton County: Gas-condensate discovery—R. E. Hibbert 1 Valigura, Thos. Slaughter Sur., A-59, TD 8,500 ft., perf. 7,623-72 ft., IP: 3,000,000 cu. ft. of gas plus 90 bbl. condensate, 55° gravity, 10/64-in. choke, TP 2,150 psi.

TEXAS GULF COAST (DISTRICTS 2 AND 3) WILDCAT FAILURES

Brazoria County: Brazos Oil & Gas Co. 2 State of Texas, John McNeel Sur., A-92, dry, TD 7,661 ft.

Fort Bend County: Petroleum Management Co. 3 A. P. George, Barnabas Wickson Sur., A-95, dry, TD 3,593 ft.

Harris County: Brazos Oil & Gas Co. 1 Charles F. Reed, et al, Adam Smith Sur., A-694, TD 4,500 ft.

Jackson County: J. Harold McCameron 1 Phillips, Houston Ranch Subd., William Bridges Sur., A-9, dry, TD 5,020 ft.

Karnes County: George W. Graham, et al, 1 Deborah, William Guthrie Sur., A-119, dry, TD 7,025 ft.

Lavaca County: Hassie Hunt Trust, 1 G. H. Lampley, Bernard O'Dougherty, dry, TD 9,307 ft.

Live Oak County: F. A. Wilson 1 Milton Gabriel, Louis Ayers Sur., A-2, dry, TD 930 ft.

Matagorda County: Henry Lane 1 Texas Gulf Sulphur Co., William Simpson Sur., A-89, Old Big Hill Dome, dry, TD 1,153 ft.

R. E. Hudson, et al, 1 Ace of Clubs, B. C. Arthur Sur., 2 mi. E of Collegeport, dry, TD 6,513 ft.

Victoria County: E. C. Johnston 2 S. W. McCormick, SA&MG Sur. 3, A-314, dry, TD 6,002 ft.

South Louisiana

Good Oil Flow Recorded In Calcasieu Discovery

NEW ORLEANS.—At its new oil discovery in Calcasieu Parish, Sun Oil Co. has recorded a flow of 150 bbl. of oil per day through ⅛-in. choke. The well, 1 Dr. W. F. Brooks, 20-10s-12w, located approximately 2 miles northwest of Vinton field, at last report, was cleaning into pits with tubing pressure of 2,400 psi. Gravity of the oil is 46°. Production is from 48 casing perforations at 10,868-80 ft. with packer set on tubing at 8,789 ft. Total depth is 11,346 ft., plugged back and drilled to 11,002 ft. in sidetracked hole. Official gage is expected as soon as tank battery is erected.

Iowa field of Jefferson Davis Parish has been extended northward at Shell Oil Co. 1 Iris Leger, 6-9s-6w. On initial production test, the well flowed 280 bbl. of 38.5°-gravity oil daily through 7/64-in. choke. Production was through casing perforations at 10,396-10,444 ft. under tubing pressure of 4,900 psi. Total depth is 11,095 ft. cased with 5-in. production string to 11,082 ft. Iowa field was discovered in 1929, and since that time it has been developed to the west.

In the Convent area of St. James Parish, The Texas Co. 1 Mrs. Josephine A. Stewart, 6-12s-17e, wildcat, is preparing to rerun packer and test. The well is bottomed at 11,000 ft. with 7-in. casing set at 10,240 ft., and 5-in. liner from 10,240-11,000 ft. During a recent test of perforations at 10,424-46 ft., no flow was recovered when well was

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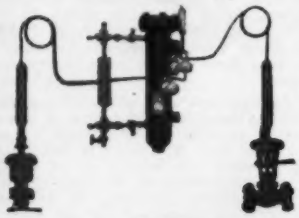

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opened on a ⅛-in. choke. Swabbing failed to recover any fluid. Perforations were squeezed, casing drilled out, and hole perforated with 216 shots at 10,274-10,310 ft. Recovery on test was shale, cement, and sand when packer failed.

One and one-half miles east and ½ mile south of the discovery well of Pine Grove feld, Beauregard Parish, Edwin L. Cox has abandoned 1 Lutcher Moore, Inc., 29-5s-11w. Hole was drilled to a total depth of 8,517 ft. in hard shale with no shows reported. Three cores of interval 7,535-90 ft. were pulled, with recovery described as shaly lime, shale, and water sand.

The 26 new locations include 2 wildcat starts, 1 each in Calcasieu and Lafourche parishes. There were no successful exploratory wells completed, however, four were reported dry, two in Beauregard Parish and one each in Jefferson Davis and Pointe Coupee parishes.

SOUTH LOUISIANA WILDCAT FAILURES

Beauregard Parish: Brown & Pallas 1 Meadows-Bennett, 13-3s-12w, dry, TD 8,287 ft.

Edwin L. Cox 1 Lutcher Moore, Inc., 29-5s-11w, dry, TD 8,517 ft.

Jefferson Davis Parish: Stanolind Oil & Gas Co. 1 Charles Dommert, 4-10s-3w, dry, TD 11,660 ft.

Pointe Coupee Parish: Bateman Drilling Co. 1 Callicot, 71-6s-9e, dry, TD 10,876 ft.

Appalachian Field

West Virginia Well Makes 12,500,000 Cu. Ft. on Test

PITTSBURGH. — Hope Natural Gas Co. has brought in a 12,500,000-cu. ft. natural-gas well in the Portland district of Preston County, West Virginia.

The test, 9462 Margaret C. Kraus, at elevation of 2,012 ft., topped chert at 4,942 ft., and Oriskany sand at 5,037 ft. While gas was found at 5,090-91, 5,093-95 and 5,097-0,101 ft., the biggest gas find was located at the lower depth. Well is now shut in.

Hope has located a new wildcat venture in the Clover district of Tucker County. Its 1-9384 Herbert Shaffer, elevation 2,401 ft., is in the Belington Quadrangle, 4½ miles south of Lat. 39°, 15′ and 2¼ miles west of Long. 79°, 45′.

Thirteen new locations were reported in West Virginia during the past week. They are in the Sherman district of Calhoun County; Center district of Gilmer County; Union district of Jackson County; Harts Creek district of Lincoln County; Cass district of Monongahela County; Big Creek district of McDowell County; Grant district of Pleasants County; Harper and Walton districts of Roane County; Clover district of Tucker County; and the Lincoln district of Wayne County.

Eberly & Snee's 1 E. O'Donnell, in the Mountain Lake Park section of Garrett County, Maryland, is shut down at 3,252 ft., after finding 343,000 cu. ft. of gas in chert. The 1 fee is drilling at 75 ft.; the 1 Gordon is at a depth of 500 ft., where casing will be reset; the 1 R. L. Gilbert is rigging up; and George L. Yaste's 1 Grimes is drilling at 3,210 ft.

One new location was reported in Beaver Township of Jefferson County, Southwest Pennsylvania.

In North-Central Pennsylvania, in Leidy Township of Clinton County on the Hammersley Fork Quadrangle, E. J. Wade et al has completed 1 R. B. McCoy Estate, elevation 873 ft., gaging 7,500,000 cu. ft. of gas, natural. Rock pressure was 3,100 psi. in 24 hours. Onondaga lime was topped at 5,557 ft., and Oriskany sand at 5,587 ft. Gas was found at 5,588 ft., and hotal depth is 5,589 ft. A new location was made by Godfrey L. Cabot, Inc., with 1 J. D. Calhoun.

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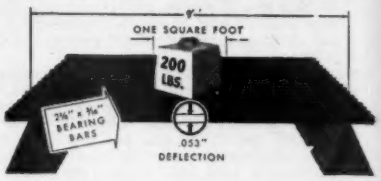

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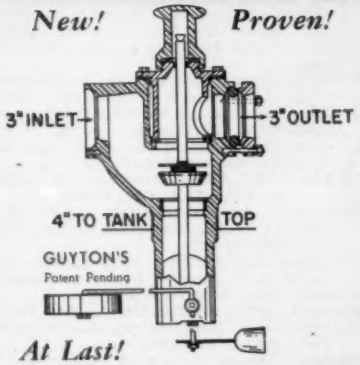

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Kansas

Clark County Wildcat Producing from Viola

STANOLIND OIL & GAS CO.'s Clark County wildcat, 1 Wall, C NE SE 35-32-23, produced 35 bbl. of oil in a 7-hour swabbing test of its prospective Viola lime pay zone, opposite which casing is perforated at 6,566-76 ft. The formation was given a 2,000-gal. acid treatment prior to swabbing. Viola has been topped at 6,421 ft. (—4,393 ft.). Although the commercial importance of the discovery has not been determined, the showings are the first of any consequence ever found below the Mississippian in the southwestern part of the state.

The well is more than 20 miles from nearest oil production, this being in the small Excell pool to the northeast in Kiowa County. It is 50 miles east of the Hugoton gas field in the little explored basin lying between that field and the Central Kansas Uplift. It is a mile north of Ashland and 13 miles from the Oklahoma line.

Hole was drilled to a total depth of 6,859 ft. in Arbuckle lime, topped at 6,779 ft., but found no showings of consequence below the Viola. Casing was run through the Viola section to 6,675 ft. in the Simpson (top 6,606 ft.), and hole plugged back to 6,625 ft. The well had promising oil and gas shows in the Lansing-Kansas City section, topped at 4,404 ft. (—2,376 ft.), and light gas shows in the Mississippian.

Two additional Stafford County wildcats are giving indications of opening new pools. M. B. Armer 1-B Gates, SE SE SW 27-21-14, 1½ miles southwest of the Van Winkle pool in the northwestern part of the county, had promising showings in both the Lansing-Kansas City and Arbuckle. A 25-minute drill-stem test at 3,520-36 ft. in the upper horizon got 2,130 ft. of oil. Top of the Lansing is 3,402 ft. (—1,462 ft.), and Arbuckle 3,772 ft. (—1,832 ft.). Total depth is 3,785 ft. with casing at 3,783 ft.

The other prospective well is Lewis Drilling Co. 1 Fair, SW SW SE 22-22-11, 2 miles east of the Richardson pool, in the northeastern part of the county. It found good saturation in the conglomerate, topped at 3,579 ft. (—1,767 ft.). Approximately 2,050 ft. of oil was recovered in the pipe following a 30-minute drill-stem test of an interval at 3,539-88 ft., total depth. It has a substantial gas showing with gas at the surface within 16 minutes. Casing has been cemented on top of the pay at 3,579 ft.

Discovery, earlier this month, of the Fort Zarah pool, in the Ellinwood area, Barton County, has been confirmed by completion of a second well. W. L. Hartmen 1 Harris, SE SE NW 30-19-12, north offset to the discovery well (National Associated Petroleum Co. 1 Harris, NE NE SW 30), pumped 309 bbl. per day on potential tests. Producing from the Lansing-Kansas City lime, opposite which casing is perforated at 3,283-94 ft. and 3,355-63 ft., it proves a second pay zone. The discovery well produces from Arbuckle lime, topped at 3,392 ft. (—1,566 ft.) and drilled to 3,399 ft. However, both wells are potential producers in both zones. The area is 3½ miles west of the Hammer pool.

KANSAS SUCCESSFUL WILDCATS

Sedgwick County: Gaty 1 Tjaden, NE SW NE 17-26s-2e, pumped 32 bbl. oil per day from Burgess at 2,945-50 ft., TD.

Stafford County: Anschultz 1 Fisher, SW SE SW 30-21s-12w, 686 bbl. oil per day from Arbuckle at 3,637-43 ft., TD; anhydrite 690 ft., Heebner 3,155 ft., lime 3,284 ft., Lansing-Kansas City 3,301 ft.

KANSAS WILDCAT FAILURES

Barton County: Adair 1 Gordon-Birzer, SE SE NW 4-19s-13w, dry, TD 3,444 ft., anhydrite 780 ft., Topeka 2,818 ft., Heebner 3,062 ft., lime 3,151 ft., Lansing-Kansas City 3,165 ft., Sooy 3,391 ft., Arbuckle 3,429 ft.

Armer et al 1 Reiman, SE SE SW 20-17s-12w, dry, TD 3,465 ft., Topeka 2,742 ft.,

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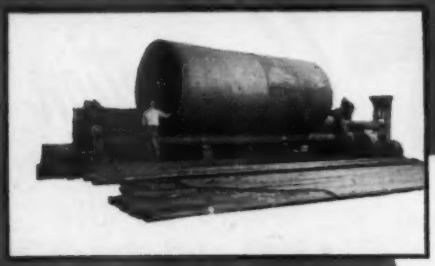
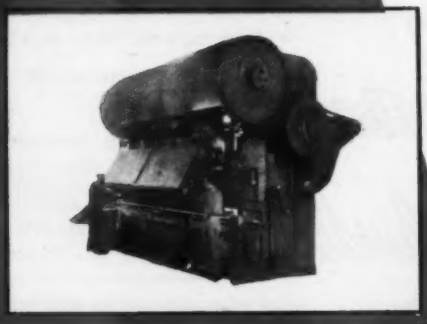
FACTS ABOUT STEEL PLATE CONSTRUCTION

that Engineers often need but Fabricators seldom publish



32-foot roll bending steel plate. One of the new equipment units in Posey's 13½ acre North Plant.



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Heebner 3,608 ft., Lansing-Kansas City 3,178 ft., Sooy 3,430 ft., Arbuckle 3,434 ft.

Coffey County: Arro et al 1 McReynolds, SW SW SW 35-21s-14e, dry, TD 1,850 ft., Mississippi lime 1,800 ft.

Ellis County: Peel-Hardman 1 Walz, NW NW NW 18-11s-20w, dry, TD 3,792 ft., Heebner 3,387 ft., Lansing-Kansas City 3,419 ft., Sooy 3,701 ft.

Coppinger 1 Hoff, SE SE NW 20-12s-16w, dry, TD 3,725 ft., Topeka 3,078 ft., Heebner 3,326 ft., Lansing-Kansas City 3,370 ft., Sooy 3,651 ft., Arbuckle 3,686 ft.

Greenwood County: Davis-Ives 1 Boyer, SE SE NW 25-26s-12e, dry, TD 1,673 ft., Mississippi lime 1,633 ft.

Hodgeman County: Diegel 1 Miner, SW SW NW 9-23s-22w, dry, TD 4,581 ft., Lansing-Kansas City 3,861 ft., Mississip lime 4,494 ft.

Kingman County: Westgate - Greenland 1 Clouse, SE SE SE 7-28s-5w, dry, TD 3,841 ft., Kansas City 2,985 ft., Mississippi lime 3,764 ft., Mississippi dolomite 3,804 ft.

McPherson County: B & R 1 Rupp, SW SW NE 12-21s-2w, dry, TD 3,023 ft.

Norton County: Hansen-C & G 1 Hansen-Allen, SE NE SE 2-5s-22w, dry, TD 3,536 ft., Topeka 3,063 ft., Heebner 3,211 ft., Lansing-Kansas City 3,211 ft., Arbuckle 3,488 ft., Reagan 3,513 ft.

Phillips County: B & R 1 Richards, NW NW SW 24-1s-19w, dry, TD 3,862 ft., Kansas City 3,369 ft., Sooy 3,735 ft., Viola dolomite (?) 3,747 ft., Arbuckle 3,844 ft.

Reno County: Ector 1 Rothenberg, NE NE SE 3-24s-8w, dry, TD 4,200 ft., Lansing-Kansas City 3,200 ft., Mississippi lime 3,734 ft., Kinderhook 3,797 ft., Viola 4,066 ft., Simpson 4,101 ft., Arbuckle 4,155 ft.

Rice County: Hutchins 1 Ray, SW NW SE 27-20s-8w, dry, TD 3,314 ft.

Rooks County: Falcon-Seaboard and Veeder Supply 1 O'Connor, SW SW SW 34-8s-20w, dry, TD 3,696 ft., Heebner 3,285 ft., Toronto 3,310 ft., Lansing-Kansas City 3,326 ft., Sooy 3,603 ft., Arbuckle 3,643 ft.

Stafford County: Midwestern Drillers 1 Smith, NE NE SW 12-22s-11w, dry, TD 3,622 ft., Heebner 3,009 ft., lime 3,142 ft., Lansing-Kansas City 3,162 ft., Sooy 3,470 ft., Viola 3,497 ft., Simpson 3,518 ft., Arbuckle 3,572 ft.

EASTERN NEBRASKA WILDCAT FAILURES

Richardson County: Fuller 1 Merz, NE NE NW 22-2n-16e, dry, TD 2,485 ft., Kansas City 894 ft., Mississippian 2,110 ft., Hunton 2,485 ft.

Stout Drilling 1 Peck, NE SE NW 24-2n-16e, dry, TD 2,650 ft., Kansas City 860 ft., Hunton 2,639 ft.

Oklahoma

Pauls Valley Wildcat Finds Second Pay Zone

CITIES SERVICE OIL CO. appears to have a good well not only in the first but also the second Bromide horizon at its 1 Hatcher, a semiwildcat which reopens the one-well (now abandoned) West Pauls Valley pool, 6½ miles northwest of Pauls Valley, Garvin County. The prospective well, located in the NW NW NE 28-4n-1w, is about ¾ mile northwest of the pool's abandoned discovery, and, until now, only producer. Nearest present production is in the Pauls Valley pool, 2 miles to the east, and the Southwest Paoli pool, about the same distance to the northeast.

Second Bromide was logged at 4,651 ft. Three drill-stem tests were made. The first, taking in an interval at 4,658-83 ft., got a gas flow estimated at 2,500,000 cu. ft. per day and an oil flow at a rate of more than 42 bbl. per hour. Gravity of the oil was 39.3°. Tester was open 79 minutes. The second and best test was of an interval at 4,673-88 ft. In it, gas was at the surface within 15 minutes and oil within 14 minutes after the tester was open. During the remaining 60 minutes of the test, the well flowed 68.8 bbl. of oil with a gas-oil ratio of only 578 cu. ft. per barrel. The third test, taking in the next lower interval of 20 ft. to total depth of 4,708 ft., showed considerable water. No water was indicated in previous tests.

Casing has been run for production tests. Results of drill-stem tests in the first Bromide sand, topped at 4,589 ft., were reported in a previous issue.

Dirickson-Lewis Drilling Co. is opening a new Layton sand pool in central Noble County. Its 1 Garrett, SW SW NE 8-22n-1e, 5 miles southwest of Red Rock and 1½ miles northwest of the Otoe City pool, nearest other production, flowed 154 bbl. of oil through ½-in. choke on a 14-hour run. Layton sand was topped at 3,398 ft. Hole was drilled to 3,435 ft., where 5½-in. casing was cemented. Pay zone is producing through casing perforations below 3,400 ft. Flowing pressures gaged 800 psi. on the tubing and 900 psi. on the casing.

A wildcat located south of the Broyles pool, 5 miles northwest of Cushing, in Payne County, recovered 200 ft. of oil and 40 ft. of heavily oil-cut mud following a 60-minute drill-stem test in Wilcox sand at 4,010-25 ft. It is Kerr-Dudley & Co. 1 Stanolind-Amerada, NE SW SW 27-18n-4e.

Production tests are being started by Herndon Drilling Co. at its 1 Smith, SW NE SE 26-13n-8e, 1½ miles south of the Rosenwald pool, Okfuskee County. Casing, cemented on bottom at 3,550 ft., was perforated opposite two zones in Gilcrease sand, one at 3,482-91 ft. and the other at 3,524-30 ft. A drill-stem test prior to running casing got 1,200 ft. of clean oil and 400 ft. of oily mud.

OKLAHOMA SUCCESSFUL WILDCATS

Carter County: Mid-States and Wheeler-Ingraham 1 Austin et al, NW SW NE 32-3s-3w, flowed 33 bbl. of 42.3°-gravity oil from limy sand and sand at 6,344-6,605 ft., TD 6,649 ft., Pontotoc-Hoxbar unconformity 1,570 ft., sand 3,485 ft., second Hewitt 4,140 ft., third Hewitt 4,542 ft., oolitic lime 4,545 ft., Deese 4,780 ft., fourth Hewitt 5,285 ft., fifth Hewitt 5,952 ft., Senora lime 5,954 ft., Tussy 6,224 ft.

Coal County: Ohio Oil Co. 1 Jones, SE SE NW 35-3n-11e, flowed 2,150,000 cu. ft. gas from bromide at 8,954-9,085 ft., TD 9,836 ft., base Atoka-top Wapanucka 6,865 ft., Wapanucka shale 6,948 ft., Cromwell 7,385 ft., Springer 7,615 ft., Caney 8,080 ft., Mississippi lime 8,385 ft., Woodford 8,482 ft., no Hunton, Sylvan 8,598 ft., Viola 8,698 ft., bromide dense 8,742 ft., Oil Creek 9,368 ft., Joins 9,685 ft., Arbuckle 9,748 ft.

Love County: Gant 1 Liddell, NE SW NE 13-7s-2e, flowed 108 bbl. 40.7°-gravity oil from sand at 5,498-5,516 ft., TD 6,835 ft., Confederate lime 1,243 ft., Hoxbar-Deese unconformity 1,906 ft., Maroon 3,520 ft., base Deese lime-top Dornick Hills 5,670 ft., Caney shale 5,750 ft., Sycamore lime 6,535 ft.

Okfuskee County: Skelly 1 Curry, NE NW SW 12-12n-8e, flowed 23 bbl. est. 41°-gravity oil from Hunton at 3,975-84 ft., TD.

Osage County: Jackson 2 Osage, SE NW SE 5-22n-10e, pumped 22 bbl. 38°-gravity oil from Mississippi chat at 2,082-2,265 ft., TD; conglomerate 1,160 ft., Big lime 1,465 ft., Oswego 1,508 ft.,

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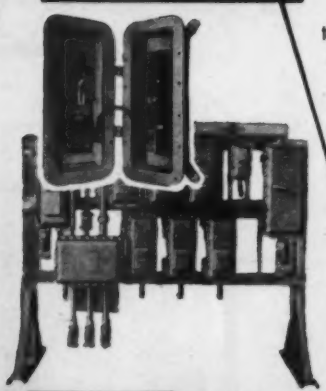

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Seminole County: Deardorf 1 Lujan, NE NE NW 6-9n-7e, pumped 51 bbl. oil from Gilcrease at 3,712-25 ft., TD.

Stephens County: Bay Petroleum 1 Payne, SW SW SW 1-1n-5n, flowed 478 bbl. 40°-gravity oil from sand at 6,715-6,845 ft., TD 8,377 ft., base Hoxbar-top Deese 5,812 ft., Chubbee 6,055 ft., Tussy sand 6,648 ft., Springer 7,180 ft.

OKLAHOMA WILDCAT FAILURES

Cleveland County: Horwitz et al 1 Stokes, NW NW NE 1-7n-1e, dry, TD 6,412 ft., Hogshooter 4,292 ft., Checkerboard 4,560 ft., base Pennsylvanian-Woodford 5,574 ft., Hunton 5,724 ft., Sylvan 5,900 ft., Viola 5,900 ft., Viola 6,12 ft., dense 6,285 ft., sandy dolomite 6,360 ft., second Wilcox 6,379 ft.

Miami Operating Co. 1 Spraw et al, NW NW NE 28-8n-1e, dry, TD 6,920 ft., Hogshooter 4,675 ft., Checkerboard 4,910 ft., Bartlesville 5,970 ft., Woodford 6,025 ft., Bois de'Arc 6,130 ft., Hunton 6,150 ft., Chimney Hill 6,380 ft., Sylvan 6,450 ft., Viola 6,545 ft., Wilcox 6,890 ft.

Cotton County: Webb and Beck 1 Dallmeir, NE SE SW 23-4s-11w, dry, TD 2,450 ft., sand 1,448 ft. and 1,672 ft., limy sand 1,764 ft., sand 1,880 ft., lime 2,012 ft., sand 2,244 ft.

Creek County: Anderson 1 Klintworth "B," SW SE NW 10-19n-8e, ½ mi. NE possible discovery, dry, TD 2,634 ft., Big lime 2,029 ft., Oswego 2,055 ft., Prue 2,130 ft., Verdigris 2,185 ft., Skinner 2,198 ft., lime 2,364 ft., Red Fork 2,412 ft., Inola 2,488 ft., Bartlesville 2,520 ft.

Kay County: Bishop Oil 1 Adams, NW NW NW 7-28n-2w, dry, TD 4,801 ft., lower Layton 3,500 ft., Checkerboard 3,728 ft., Big lime-Oswego 3,885 ft., Wilcox 4,785 ft., Mississippi chat 4,328 ft., Mississippi lime 4,497 ft., Woodford 4,640 ft.

Kiowa County: Lang 1 Evatt, SE SW NE 26-5n-15w, dry, TD 125 ft.

Rodgers 1 fee, NE NE SW 35-6n-17w, dry, TD 505 ft.

Lincoln County: Harper-Turner 1 Sherwin, SE SW SE 26-12n-4e, dry, TD 4,766 ft., Hogshooter 2,755 ft., Checkerboard 3,112 ft., Big lime 4,008 ft., Oswego 4,055 ft., Skinner 4,145 ft., Red Fork 4,380 ft., Inola 4,474 ft., lime 4,600 ft., Bartlesville 4,481 ft., Mississippi Caney 4,753 ft.

Deep Rock 1 Ralstin, NE NE NE 20-17n-2e, dry, TD 5,068 ft., Hogshooter 3,375 ft., Checkerboard 3,645 ft., conglomerate 3,690 ft., Oswego 4,090 ft., Verdigris 4,245 ft., Skinner 4,266 ft., lime 4,378 ft., Red Fork 4,400 ft., Mississippi lime 4,533 ft., Woodford 4,635 ft., Misener 4,678 ft., Hunton 4,680 ft., Sylvan 4,753 ft., Viola 4,853 ft., dense 4,872 ft., dolomite 4,900 ft., sandy dolomite 4,933 ft., Wilcox 4,950 ft., second Wilcox 5,053 ft.

Logan County: H. E. R. Drilling 1 Davis, SW SW NE 9-16n-1w, dry, TD 5,830 ft., Hogshooter 4,323 ft., Layton 4,360 ft., Checkerboard 4,417 ft., conglomerate 4,613 ft., Verdigris 5,157 ft., Mississippi lime 5,262 ft., Woodford 5,372 ft., Misener 5,412 ft., Hunton 5,417 ft., Sylvan 5,492 ft., Viola 5,582 ft., dolomite 5,702 ft., Wilcox 5,747 ft., second Wilcox 5,830 ft.

Simmons 1 Blakesley, NE NE NW 12-18n-2w, dry, TD 5,822 ft., Avant-Dewey 3,740 ft., Layton 4,065 ft., Checkerboard 4,362 ft., Big lime-Oswego 4,773 ft., Mississippi lime 5,233 ft., Woodford 5,463 ft., Hunton 5,530 (?) ft., Sylvan 5,538 (?) ft., Viola 5,577 ft., Wilcox 5,667 ft., Marshall 5,727 ft., second Wilcox 5,811 ft.

Deep Rock 1 Reed "B," NE SE SE 1-19n-2w, dry, TD 5,380 ft., Oread 2,800 ft., Tonkawa 3,198 ft., Avant 3,412 ft., Perry 3,590 ft., Osage Layton 3,896 ft., Hogshooter 4,094 ft., Checkerboard 4,304 ft., Big lime-Oswego 4,530 ft., Mississippi lime 4,932 ft., Woodford 5,062 ft., Viola 5,168 ft., Wilcox 5,258 ft., second Wilcox 5,356 ft.

Muskogee County: Gillespie & Sons 1 Stith, SW SW SW 35-14n-15e, dry, TD 2,404 ft., Booch 1,347 ft., Lydecker sand 1,666 ft., lime 1,845 ft., 1,870 ft., and 1,915 ft., sandy lime 1,955 ft., lime 1,965 ft. and 2,014 ft., shaly lime 2,053 ft., sand 2,065 ft., 2,181 ft., 2,379 ft., and 2,401 ft.

Okmulgee County: Jackson 1 Furr, SW NW SE 21-11n-12e, dry, TD 2,016 ft.

Pottawatomie County: Amerada 1 McKown, NE NE SE 25-8n-4e, TD 4,497 ft.

Seminole County: Blackwood & Nichols 1 Stewart, NE NE SW 27-6n-6e, dry, TD 3,905 ft., Senora 1,992 ft., Thurman 2,236 ft., lime 2,330 (?) ft., Cromwell 2,584 ft., Springer 2,760 ft., Mississippi Caney 2,990 ft., Mayes 3, 75 ft., Wilcox 3,884 ft.

Stephens County: Hamon and Seaboard 1 Blaydes, NE SW NE 20-1s-7w, dry, TD 5,500 ft., Loco lime 3,770 ft., Deese 5,015 ft., lime 5,115 ft., Arbuckle detrital 5,140 ft.

North Central Texas

Bend Production Found in Stepout in Wise County

WICHITA FALLS.—New Bend conglomerate production for west-central Wise County was reported at Dwight M. Ross and Reno Oil Co. 1 J. W. Walker, east of Bridgeport and a long southwest stepout to a small Strawn sand producer.

Producing from open hole pay at 5,540-5,658 ft., after acid treatment, the well flowed 76.6 bbl. of 44°-gravity oil a day, plus some water, through 26/64-in. choke. Gas-oil ratio was 1,930 cu. ft. The same operators are drilling a Caddo exploration as a northwest outpost to the Strawn well.

A new Caddo field was opened in Throckmorton County northeast of Woodson at Warren Oil Corp. 1 West Hamilton. The discovery completed for 102 bbl. of 42°-gravity oil in 3 hours, flowing through 22/64-in. tubing choke, for a calculated daily potential of 814 bbl. Flowing pressure on tubing ranged from 610-385 psi. Pay was from 3,748-58 ft., in the upper Caddo.

Cities Service Oil Co. and Sinclair Oil & Gas Co. completed their 1-154 Swenson ranch as a 1½-mile southwest extension to their 1-170 Swenson, Caddo discovery well. The new producer flowed 73 bbl. of 43°-gravity oil a day through 18/64-in. choke, from perforations at 4,973-83 ft.

The same operators' 2-170 Swenson, southwest offset and confirmation well in the immediate area of the discovery, was coring ahead at 4,968 ft.

Northwest Cooke County had a shallow sand prospect at Wilson Brothers 1 W. F. Solomon, northwest of Muenster. The sand has been tentatively identified as the lower Pennsylvanian. Drill-stem test from 2,376-90 ft. recovered 160 ft. of clean oil. Top of the sand was 2,382 ft. The well is 1 mile west of 1,600-ft. production.

In Foard County, 7 miles east of Johnson field, British-American Oil Producing Co. 1 J. H. Johnson recovered 305 ft. of oil and gas-cut mud, with no water, on a drill-stem test in limestone from 2,134-51 ft.

NORTH TEXAS (DISTRICTS 9 AND 7-B) SUCCESSFUL WILDCATS

Callahan County: Chapman Oil Co. 1 Mrs. E. C. Hormell, 306-5-SPRR, 1 mi. S Putnam, TD 4,119 ft., Ellenburger 4,102 ft., pay 4,116 ft., flowed 830 bbl. 31°-gravity oil a day, 24/48-in. choke, TP 385 psi., GOR 200 cu. ft.

Montague County: O. E. Hall 1 L. M. Staley, J. Harlow Sur., A-22, TD 6,001 ft., conglomerate pay 5,988 ft., flowed 394.7 bbl. 41°-gravity oil a day, ¼-in. choke, TP 380 psi., GOR 277 cu. ft.

Russell Maguire 2 Lillie Bell Jones, J. Y. Castillo Sur., 3½ mi. W Nocona, TD 5,317 ft., pay 4,650-60 ft., pumped 91 bbl. 41°-gravity oil a day, GOR 300 cu. ft.

Stephens County: Cities Service Oil Co. 1-B Wright, Sec. 1,538 ft., T7&L Sur., 8 mi. W Breckenridge, TD 4,453 ft., elev. 1,253 ft., Ellenburger 4,361 ft., pay 4,400 ft., pumped 124 bby. 42°-gravity oil a day, cut 40 per cent water.

Young County: Netex Oil & Gas Co. 1 B. W. King, Blk. 293, TE&L Sur., 2 mi. W Jean, TD 3,125 ft., Strawn sand 3,108 ft., flowed 125 bbl. 42°-gravity oil a day, 16/64-in. choke, TP 125 psi., GOR 277 cu. ft.

NORTH TEXAS (DISTRICTS 9 AND 7-B) WILDCAT FAILURES

Archer County: E. B. Clark and Harmon Whittington 1 Texas Plains Oil Co., A. Nunley Sur., 8½ mi. S Windthorst, dry, TD 5,790 ft.

Fortex Oil Corp. 1 Garvey, S. H. Smith Sur., 11 mi. SE Archer City, dry, TD 851 ft.

Moncrief, Grace, Crosby and Hope 1-B Wilson, Lot 2, Blk. 55, ATNCL, 12 mi. N Archer City, dry, TD 4,006 ft.

Ted Weiner et al 1 J. D. Sebring, Sec. 8, H&TC Sur., 4 mi. SW Dundee, dry, TD 5,452 ft.

Baylor County: H. F. Snebold 1 M. C. Brown, 188-1-T&NO, 5 mi. SE Seymour, dry, TD 5,334 ft.

Brown County: Mrs. R. B. Slusher 1 Tom Hays, Chas. Banister Sur., 2½ mi. W Thrifty, dry, TD 1,350 ft., elev. 1,502 ft., Palo Pinto 1,237 ft.

Callahan County: McElroy Ranch Co. 1 J. R. Hart, Sec. 61, LAL Sur., 8 mi. NW Putnam, dry, TD 4,216 ft., elev. 1,493 ft., Strawn sand 2,275 ft., Caddo 3,492 ft., Lake sand 3,820 ft., Ellenburger 4,150 ft.

Clay County: S. D. Johnson 1 W. H. Vieth, 8-2-Clark & Plumb, 7 mi. W Deer Creek, dry, TD 5,557 ft.

Coleman County: Hooker et al 1 W. H. Thate, Sec. 87, ETRR, 11 mi. E Coleman, dry, TD 2,507 ft., Caddo 1,984 ft.

Cooke County: Oil Hunters, Inc. 1 A. L. Wooten, C. Yarbrough Sur., 2 mi. W Tioga, dry, TD 3,297 ft.

Fisher County: B. A. Duffey 1 Lawson, 4-3-Sallie English Sur., 2 mi. E McCaulley, dry, TD 6,75 ft., Noodle Creek 2,925 ft.

Jack County: R. S. Lytle et al 1 M. T. Berry, M. Henderson Sur., 10 mi. NE Jackson, dry, TD 5,519 ft., conglomerate 5,200-5,301 ft.

Midland Oil Corp. 1 A. C. Eason, J. Ariola

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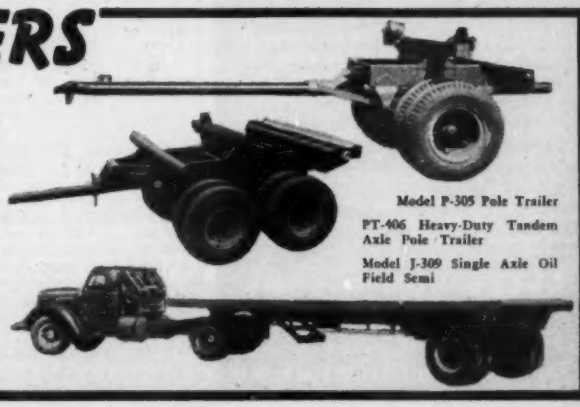

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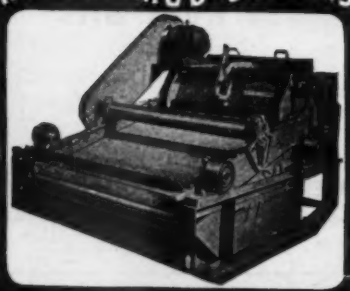

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Jones County: Ungren & Frazier 1 W. A. Staton, Sec. 356, Subd. 1, I. de la Garza Garza Sur., 4 mi. S Hamlin, dry, TD 5,575 ft., elev. 1,758 ft., Valera 1,800 ft., Dothan 2,615 ft., Clear Fork 3,050 ft., Flippen sand 3,105 ft., Strawn 5,495 ft.

S. D. Johnson 1 Doug Johnson, T. F. Morrow Sur., 4 mi. N St. Jo, dry, TD 4,326 ft.

Stephens County: Hooker & deMohrenschildt 1 Trammell, 23-7-T&P, 12 mi. S Breckenridge, dry, TD 4,328 ft., elev. 1,472 ft., Caddo 3,460 ft., Duffer 3,953 ft., Mississippian 4,004 ft., Ellenburger 4,286 ft.

Stonewall County: Harper & Turner 1 Mrs. W. I. Martin, 138-1-H&TC, dry, TD 6,096 ft.

Nebo Oil Co. 1 W. J. Patterson, 386-D-H&TC, 5 mi. W Peacock, 5 mi. W Peacock, dry, TD 6,561 ft.

Taylor County: E. K. & E. M. Burt 1 Buster Horton, Stephen H. Darden Sur., 3½ mi. NW Tye, dry, TD 3,307 ft., Flippen 2,391 ft., upper Hope 2,534 ft., reef 3,291 ft.

Wilbarger County: Neeld & Hood Drilling Co. 1 W. T. Waggoner, 1-6-H&TC, dry, TD 2,510 ft.

Neeld & Hood 2 W. T. Waggoner, 36-6-H&TC, 3 mi. W Electra, dry, TD 1,875 ft.

Young County: Bay Petroleum Corp. 1 W. A. Morris, Sec. 2,383, TE&L, 2½ mi. NW Murray, dry, TD 3,005 ft., Golden sand 2,638 ft.

G. F. Lebus, Jr. et al 1 Margaret Reischman, Susan Sallee Sur., 3 mi. N Loving, dry, TD 3,640 ft.

Mid-Continent Petroleum Corp. 1 B. W. King, TE&L Sur. 631, 2 mi. SE Jean, dry, TD 5,208 ft., Caddo 4,141 ft., Mississippian 5,127 ft.

Michigan

Wheatland Wildcat Being Tested for Traverse Pay

MOUNT PLEASANT.—W. B. Darke 1 Bergelin, SE SW NW 3-14n-7w, Wheatland Township wildcat, Mecosta County, was being tested in the Traverse after hole showed 300 ft. of free oil, no water, in 10 hours after the oil pay had been tapped. Top of Traverse lime was logged at 3,235 ft. and oil pay showed from 3,307-11 ft., in the Alpena Traverse section. Hole was drilled 2 ft. deeper, to 3,313 ft., after hole showed the 300 ft. of free oil in 10 hours, with no increase in oil fill-up noted from this deepening.

The Darke Wheatland wildcat was scheduled to be drilled to the Dundee but it appeared this week that the Traverse oil show would be acidized and tested prior to deepening on this lower objective. The 1 Bergelin is located about 2 miles northeast of Rex Oil & Gas Co.'s lone Dundee oil producer in Section 8-14n-7w. Other wildcats drilled in this same general area have showed oil from the Traverse, but none of them reported to have logged as much oil as was showing in Darke's test this week.

Estimated 1950 Michigan oil production, according to the Michigan Department of Conservation, was 15,840,000 bbl. as compared to the 1949 total of 16,517,337 bbl. Estimated 1950 gas production was 12,472,000,000 cu. ft. in contrast to 14,660,000,000 cu. ft. in 1949. More Mid-Continent gas is coming into Michigan to take care of the expanding domestic market, and state gas fields are becoming more important as underground gas storage reservoirs.

MICHIGAN WILDCAT FAILURES

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Hopkins Township: Maury Roberts 1 McBride, NW NE SW 25-3n-12w, Traverse 1,642 ft., dry, TD 1,664 ft.

Otsego Township: Augie Rusk 1 Dunfield, SE SE NE 6-1n-12w, Traverse 1,447 ft., dry, TD 1,498 ft.

Mecosta County, Wheatland Township: Rand & Neyer 1 Mayer, SW NE NE 7-14n-7w, Dundee 3,694 ft., dry, TD 3,699 ft.

Newaygo County, Denver Township: R. G. Smith and Fisher McCall Oil & Gas, Inc., 1 Kropscott & Kropscott, NE SE SE 34-14n-14w, Traverse 2,409 ft., dry, TD 2,412 ft.

Ottawa County, Jamestown Township: Leonard Oil, Inc., 1 Sneden et al, NE NW NE 23-5n-13w, Traverse 1,806 ft., dry, TD 1,813 ft.

Eastern Texas

Woodlawn Outpost May Get Pay in New Rodessa Zone

DALLAS.—Hollandsworth Oil Co. 2 Frank Davis, John Husband Survey, and a west outpost to Woodlawn field, had prospects of gas or distillate pay from the Hill zone of the Rodessa. Present production in the field is from the Pettit limestone.

On the basis of a core from 5,467-90 ft., operators placed the 12-ft. gas-pay zone between 5,647-59 ft. A drill-stem test of that interval had gas in 15 minutes, flowing under 175 psi. pressure through ½-in. bottom and ¼-in. top chokes. Details on the fluid recovery were not disclosed. Operator was drilling ahead after reaming the core hole to 5,690 ft.

Northwest Grayson County gained a 7,700-ft. wildcat, to be drilled 4 miles southeast of Sandusky. S. D. Johnson and others staked location for the well as 1 G. T. Branham, in the J. D. McLeod Survey, 2 miles southeast of Ada Oil Co.'s Oil Creek sand discovery.

The Texas Co. 1 Scarborough, west outpost to the Oil Creek discovery, squeezed perforations from 7,164-72 ft. after a test of the section recovered 297 bbl. of fluid, being 59 per cent salt water and the remainder oil. Plug was set at 7,145 ft. for testing higher in the hole.

East of Navarro Crossing, (Woodbine), field, W. B. Hinton and others 1 C. L. Walters had casing set at 5,800 ft. for completion attempt from a sub-Clarksville sand section at 5,753-62 ft. Operators believed there was about 5 or 6 ft. of pay, based on clean oil recovery, with some salt water, on a drill-stem test of that interval. Total depth was 6,050 ft., in the Woodbine, which had no shows.

In Cherokee County, Union Producing Co. 1 W. W. Dover completed as a Woodbine producer, in North Jacksonville field which was opend by a gas discovery. Initial potential was 101 bbl. of 40°-gravity oil from pay at 4,393-94 ft.

EAST TEXAS (DISTRICTS 5 AND 6) WILDCAT FAILURES

Bowie County: Bradham & Stewart 1 C. V. Blanchard, N. D. Ellis Sur., 7 mi. N New Boston, dry, TD 5,647 ft.

Cherokee County: Bobby Manzield 1 W. F. Sims, Thomas Quevado Sur., in Mt. Selman area, dry, TD 5,147 ft.

Hunt County: Vernon Whiteley Drilling Co. 1 B. L. Cox, Cox & Ragsdale Sur., 4 mi. SW Campbell, dry, TD 4,475 ft.

Leon County: Hamman Oil & Refining Co. 1 Dunlap, Eddy Sparks Sur., 1½ mi. SW Oakwood, dry, TD 6,068 ft. in Woodbine.

Limestone County: Great Expectations Oil Co. 1 E. C. Trotter, J. Boyd Sur., 1½ mi. N Tehaucana, dry, TD 2,945 ft. in the Woodbine.

McLennan County: R. A. Whitehurst 1

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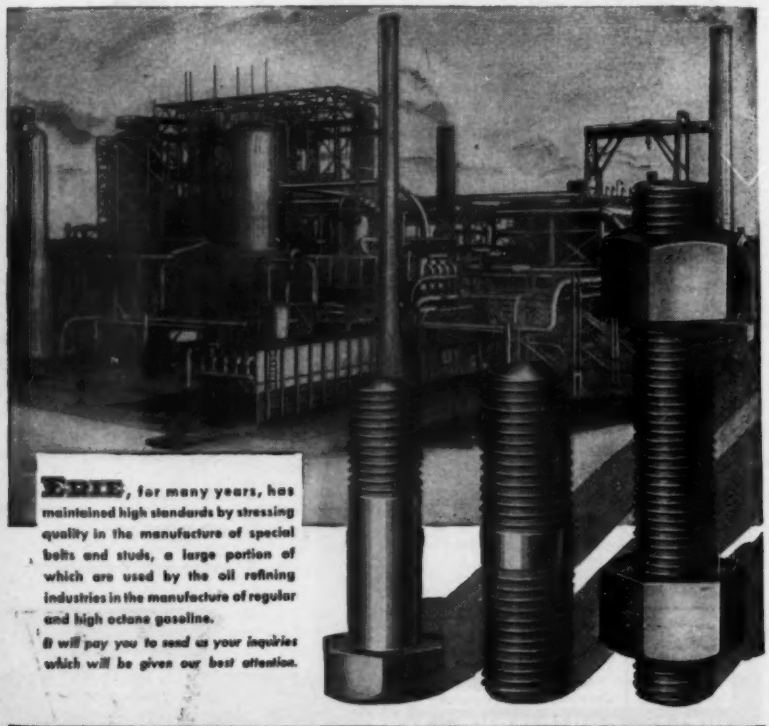

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E. H. Grindstaff, B. M. Hunter Sur., 13 mi. NE Waco, dry, TD 1,328 ft.

Rusk County: Beacon Oil & Refining Co. 1 Skelton, J. R. Clutesy Sur., 7 mi. N Mt. Enterprise, dry, TD 7,265 ft.

Permian Basin

Good Devonian Discovery Is Made in Martin County

MIDLAND. — The Texas Co. 1-X State, small Ellenburger discovery in northwest Martin County, near the Andrews County line, has been plugged back and recompleted as a good Devonian discovery. Location is 17-7-University Lands Survey and the new field name is Block 7. The well was formerly West Texas' deepest production, with pay from 12,348-12,420 ft., total depth. Original completion was for about 15 bbl. of oil a day, plus water.

Operators plugged back to 12,348 ft. and perforated in the Devonian at 12,280-95 ft. and swabbed 24 bbl. of oil in 24 hours. After treating with 500 gal., it kicked off and flowed 65 bbl. of oil in 9 hours through open 2-in. tubing, and after a total of 500 gal. of acid, the well flowed its completion potential of 391 bbl. of 45°-gravity oil a day through 10/64-in. choke. Flowing pressures were 1,080 psi. on casing and 1,000 psi. on tubing. Gas-oil ratio was 28 cu. ft.

Brinkernoff Drilling Co. 1 E. Jones, northwest Howard County wildcat, found a lower pay section in the Pennsylvanian. Following treatment with 1,000 gal. of mud acid and 9,000 gal. of regular acid in open hole between 9,465-9,716 ft., the hole was swabbed out then flowed through open 2-in. tubing, making an average of 12.8 bbl. of oil for 10 hours, cut 11.5 per cent with acid water.

In October the 1 Jones flowed 387 bbl. of oil in 20 hours from pay at 9,465-9,510 ft. but the flow died and could not be revived. Location is 5 miles west of the new Burton Canyon reef field.

Wilshire Oil Co. 1 Whatley, northwest Scurry County wildcat, entered a soft, porous, white limestone at 6,042 ft., minus 3,372 ft., and was drilled to 6,070 ft., returning samples that had good shows of oil and gas, with some bleeding oil and good porosity. From the samples, the section was tentatively identified as Wolfcamp, lower Permian.

A 2-hour test of the section recovered 90 ft. of gas-cut mud, with a show of oil, and 810 ft. of gas-cut sulfur water. Another source said the 810 ft. of fluid was oil and gas-cut sulfur water.

Continental Oil Co. 2 Swenson, Garza County wildcat which drilled to the Ellenburger, had plugged back from that formation and was attempting to complete as a Pennsylvanian discovery. Casing was perforated from 7,044-86 ft.

In Midland County, Cities Service Oil Co. and Continental 1-AH University, Ellenburger prospect, flowed gas, distillate and sulfur water from perforations at 10,855-76 ft. New perforations were made from 10,811-41 ft. for further testing.

Waddell sand production (lower Simpson), has been assured at Sinclair Oil & Gas Co. 1 W. E. Connell, on the north side of the Jordan Ellenburger field of Ector County. The well kicked off after swabbing perforations at 8,375-8,415 ft. and flowed into pits for 16 hours, making 408 bbl. of 43°-gravity oil. The first 8 hours was through ¾-in. choke and the last 8 hours through ¼-in. choke. Top of the Waddell section was 8,377 ft., on elevation of 2,866 ft. Ellenburger was topped at 8,623 ft. and drilled to 8,916 ft. According to reports, that formation indicated production, from samples, and a test run. The well has been scheduled for dual completion if the Ellenburger is productive, and will mark the first pay in the area from the Waddell.

In southeast Dawson County, Sunray Oil Co. 1 R. A. Brown flowed oil at the rate

of 278 bbl. daily from a reef limestone structure, reported to be Pennsylvanian. The flow was through ¾-in. choke on a 7-hour test, from perforations at 9,496-9,506 ft. Nearest production is Spraberry field, about 7 miles east.

James H. Snowden 1-32 Carrie S. Dean, northeastern Dawson County wildcat, found additional shows in the Spraberry on a 4-hour test from 7,398-7,425 ft. Gas was at the surface in 27 mintues and recovery was 1,100 ft. of free oil, plus 40 ft. of oil-cut mud. The well had oil from 7,273-7,313 ft., and water from 7,292-7,316 ft.

WEST TEXAS (DISTRICTS 8 AND 7-C) SUCCESSFUL WILDCATS

Howard County: Fred M. Manning, Inc. 1 C. L. Jones, 5-25-H&TC, 2 mi. NE Vincent, TD 8,453 ft., elev. 2,325 ft., reef 7,464 ft., perforated 7,698-7,703 ft., flowed 246.6 bbl. 46°-gravity oil a day, 9/64-in. choke, GOR 1,500 cu. ft., TP 1,500 psi.

Kimble County: West Texas Oil & Royalty Corp. 1 C. W. Faulkner, 80-A-GWT&P, 4 mi. W Roosevelt, TD 3,157 ft., PB 2,941 ft., Strawn 2,910 ft., perforated 2,912-40 ft., pumped 74.5 bbl. 29.7°-gravity oil a day.

Scurry County: Robert W. McKissick 1 Hugh Birdwell, 177-97-H&TC, 5½ mi. NW Ira, TD 3,250 ft., sand pay 2,438-58 ft., pumped 30 bbl. 39°-gravity oil, some water, per day.

Sutton County: C. L. Norsworthy, Jr. and Lone Star Producing Co. 1 R. M. Thomson, 67-A-HE&WT, 8½ mi. N Sonora, TD 7,441 ft., PB 1,016 ft., pay 930 ft., pumped 56 bbl. 38°-gravity oil a day, Ellenburger 6,909 ft.

WEST TEXAS (DISTRICTS 8 AND 7-C) WILDCAT FAILURES

Andrews County: Magnolia Petroleum Co. 1 G. T. Hall, 8-A29-PSL, 7½ mi. SW Boydell, dry, TD 7,653 ft., elev. 3,505 ft.

Borden County: W. C. McBride, Inc. 1 W. Holbein, 53-25-H&TC, dry, TD 7,205 ft. in shale.

Shell Oil Co. 1 Sterling, 70-25-H&TC, 5 mi. NE Knapp, dry, TD 8,315 ft., elev. 2,237 ft., San Andres 2,110 ft., Ellenburger 8,292 ft., reef 6,754 ft.

Coke County: Sun Oil Co. 1 R. H. Harris, Winfield Scott Sur. 10, 13 mi. NW Robert Lee, dry, TD 7,206 ft.

Cottle County: Sun Oil Co. 1 L. Hughes, Knott & Plemons Sur., dry, TD 8,023 ft., elev. 1,997 ft., Strawn 5,585 ft., Ellenburger 8,005 ft.

Dickens County: Tide Water Associated Oil Co. 1-A Pitchfork Ranch, 18-1-Sam Lazarus Sur., 10 mi. NW Guthrie, dry, TD 7,005 ft., elev. 2,414 ft., Glorietta 1,615 ft., Clear Fork 1,710 ft., Wichita 2,845 ft., Wolfcamp 3,565 ft., Cisco 4,297 ft., Bend 6,800 ft.

Tide Water 1-D Pitchfork, 23-1-Sam Lazarus, 13 mi. W Guthrie, dry, TD 7,037 ft., elev. 2,146 ft., Clear Fork 1,435 ft., Wolfcamp 3,280 ft., Mississippian 6,904 ft.

Garza County: Kerr-McGee Oil Industries, Inc. 1 G. W. Connell, 23-5-GH&H, 6 mi. N Justiceburg, dry, TD 8,215 ft., elev. 2,305 ft., San Andres 2,075 ft., Glorietta 2,863 ft., Clear Fork 3,000 ft., reef 7,438 ft., Ellenburger 8,013 ft.

Glasscock County: J. Y. Francis 1 W. H. Clark, 12-35-4S-T&P, 6 mi. W Garden City, dry, TD 4,020 ft.

Kimble County: Anzac Oil Corp. 2 Lottie Bolt, Sec. 42, Sarah Jones Sur. 42, 5 mi. NE Junction, dry, TD 1,551 ft.

King County: Ard Drilling Co. 10 R. B. Masterson, Sec. 39, F. P. Knott Sur., 20 mi. NE Guthrie, dry, TD 4,286 ft., elev. 1,708 ft., Cisco 3,763 ft., Canyon 4,255 ft.

Lubbock County: Geo. P. Livermore, Inc. 1 Bettie Lindsey, 13-D6-EL&RR, 10 mi. W Lubbock, dry, TD 11,515 ft., elev. 3,350 ft., San Andres 3,790 ft., Clear Fork 5,924 ft., Wichita Albany 6,890 ft., Ellenburger 11,360 ft., pre-Cambrian 11,500 ft.

Midland County: J. K. Dobbs 1 W. Bryant, 24-39-3S-T&P, dry, TD 8,565 ft., elev. 2,699 ft.

Pecos County: Sinclair Oil & Gas Co. 1-A Elsinore Royalty, 14-B-GC&SF, dry, TD 3,636 ft.

Reagan County: Atlantic Refining Co. 1 S. A. Hartgrove, 12-H-L&SV, 12 mi. NW Texon, dry, TD 12,140 ft., elev. 2,688 ft., Spraberry 6,530 ft., Wolfcamp 8,160 ft., Strawn 10,280 ft., Bend 10,465 ft., Devonian 11,405 ft., Silurian 11,566 ft., Fusselman 11,620 ft., Simpson 11,705 ft., Ellenburger 11,865 ft.

Reeves County: John W. Byrd 1 S. E. Ligon & Byrd, 30-C3-PSL, 21 mi. SE Pecos, dry, TD 1,644 ft.

Runnels County: Geochemical Surveys 1 J. W. Harris, J. V. Cabrera Sur., 1½ mi. SW Crews, dry, TD 4,205 ft.

LaGloria Corp. 1 I. L. Phipps, Sec. 20, SPRR Sur., 1½ mi. NW Crews, dry, TD 4,263 ft., elev. 1,930 ft., Capps 3,610 ft., Fry 3,645 ft., Gardner 3,895 ft.

Scurry County: Amerada Petroleum Corp. 1 Willie Jubena, 160-3-H&TC, 2 mi. SE Hermleigh, dry, TD 7,813 ft., elev. 2,425 ft., San Andres 1,405 ft., Clear Fork 1,999 ft., Strawn 7,130 ft., Mississippian 7,455 ft., Ellenburger 7,575 ft.

Terry County: Brinkerhoff Drilling Co. 1 J. P. Bowman, 15-M-C&M, 8½ mi. S Brownfield, dry, TD 10,140 ft., elev. 3,265 ft., San Andres 4,650 ft., Spraberry 7,605 ft., Dean 9,065 ft., reef 10,105 ft.

Nelson Bunker Hunt 1 A. M. Brownfield, 74-T-D&W, 3 mi. SE Brownfield, dry, TD 10,696 ft., elev. 3,266 ft., San Andres 4,730 ft., Spraberry 7,600 ft., limestone 10,625 ft.

Tom Green County: Aurora Gasoline Co. 1 Mora Green Kent, 197-11-SPRR, 20 mi. SE San Angelo, dry, TD 4,822 ft.

SOUTHEASTERN NEW MEXICO

HOBBS.—North of Saunders Pennsylvanian field of Lea County, The Texas Co. 1 State AN, 22-14s-33e, had flowing oil on a drill-stem test from 9,771-9,800 ft., identified by some sources as Pennsylvanian.

The test was open 2 hours and 14 minutes and a 2,000-ft. water cushion was used. The water blanket started flowing in 35 minutes, gas in 45, and oil in 50 minutes. It was flowed into tanks for 1 hour, gaging 89 bbl. of 42°-gravity oil, plus 30 per cent salt and sulfur water. Gas volume was estimated around 3,000,000 cu. ft. daily and flowing pressure ranged from 3,400-3,275 psi. Shut-in pressure was 3,550 psi. in 20 minutes. A second test was being run from 9,800-9,835 ft.

Stanolind Oil & Gas Co. 2 Federal-Leonard, southeast Lea County wildcat, prepared to shoot in the Montoya section from 9,874-9,895 ft. with nitroglycerin after acid treatments failed to break the formation. The section has indicated production on drill-stem tests.

Amerada Petroleum Corp. 2 Caudle, 1-mile extension to the Bagley-Hightower field, recovered 1,350 ft. of clean oil, and 180 ft. of half oil and mud on a drill-stem test from 11,014-65 ft. The tool was open 4 hours. Following the test it was cored ahead below 11,051 ft. Top of the Devonian was 11,012 ft. The well has indicated Pennsylvanian production on tests from 8,565-8,717 ft.

Tide Water Associated Oil Co. 1-D State "P," wildcat in 32-16s-37e, recovered 1,110 ft. of oil on a drill-stem test at 10,690-10,811 ft., and after a 5-hour test from 11,067-11,120 ft., drill pipe started unloading when 3,060 ft. of pipe had been pulled, yielding the water cushion and an estimated 5,760 ft. of oil.

SOUTHEAST NEW MEXICO WILDCAT FAILURE

Chaves County: Spartan Drilling Co. 1 State "25," 25-5s-29e, dry, TD 8,911 ft., elev. 4,339 ft., San Andres 2,580 ft., Glorietta 3,810 ft., Abo 6,040 ft., Wolfcamp 6,735 ft., Pennsylvanian 7,050 ft., Mississippian 8,086 ft., Devonian 8,486 ft., Ellenburger 8,695 ft., pre-Cambrian 8,903 ft.

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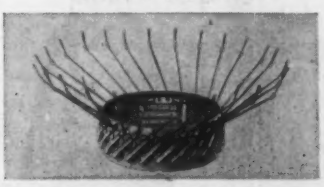

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Rocky Mountain

Far Western Nebraska Has New Oil Prospect

DENVER.—A new discovery 40 miles west of previous production in the Nebraska portion of the Denver-Julesburg basin called considerable attention to the area this week. Kerr-McGee Oil Industries, Inc., and Stanolind Oil & Gas Co. recovered 4,200 ft. of 40°-gravity green oil on 1 hour drill-stem test at 1 Downer, NE NE SE 6-18n-55w, in the Meade area, Banner County, Nebraska, and are running casing for completion of the well. Production is from the "J" sand, at the base of the Graneros series. The test was between 5,880-5,907 ft., and there was a strong blow throughout the test, with flowing pressures reported at around 1,000 psi. Kerr-McGee acquired the block on a farmout from Stanolind, and the present well is the third in their series through the north-central part of the basin. Stanolind has drilled two failures, one approximately 5 miles south of the present well. Stanolind did considerable seismic work through this area prior to farming out the block.

Lease buying is reportedly heavy through the eastern portion of the Uintah basin following tests at California Co.'s 1 Unit, NE NE NE 26-7s-23e, wildcat in the Red Wash area, Uintah County, Utah. The operator is now at 5,270 ft., total depth, with a test reported between 5,170-5,250 ft. No information has been released, but a majority of the 4,000-ft. recovery is reported to be oil. If this is true, the recovery of oil in the basal Green River (Tertiary) at this depth is of considerable regional importance and might lead to a very active exploratory drilling play in the area. This well is located approximately 30 miles southeast of Roosevelt field, where basal Green River oil is found around 9,200 ft. It is 20 miles southeast of California Co.'s Gusher producer, which was completed last year as a small basal Green River discovery, and approximately 20 miles directly west of Rangely field, which produces from the Weber (Pennsylvanian). The first sizable Tertiary oil production for the Rocky Mountains was established by Carter Oil Co.-Stanolind Oil & Gas Co. at Roosevelt, where the discovery well flowed approximately 1,600 bbl. of oil daily through choke from the basal Green River zone. An extensive exploratory drilling campaign is now under way throughout this basin, with Carter drilling below 11,500 ft. at Blue Bell 1 Unit, C SW NE 6-1s-2w, (USM), west of Roosevelt, and starting a new operation at Vernal, northeast of Roosevelt and Gusher.

An unconfirmed report from Bismarck that Amerada Petroleum Corp. will run casing at its wildcat in the Beaver Lodge area, Williams County, North Dakota. The well, 1 Iverson, C SW SW 6-155n-95w, is now below 11,398 ft. The Jefferson (?) was topped at 10,110 ft. and staining has been reported in cores of the formation. A small amount of oil with 824 ft. of gas-cut mud was found on drill-stem test at 10,452-10,803 ft. On a test at 10,950-11,156 ft. the recovery was 120 ft. of drilling mud. A core from 11,161-11,211 ft. showed 14 ft. of salt. The operation is of considerable importance for future drilling in the Williston basin.

Roy M. Johnson of Ardmore, Okla., has made location for a Weber sand test in the Brush Creek area, Uintah County, Utah, at 2 Neal, C SE SE 2-5s-22e, on a farmout block from Sun Oil Co.

COLORADO WILDCAT FAILURE

Nordloh, Weld County: Tom Smith 1 Nordloh, NW NW SE 20-5n-63w, TD 700 ft., dry.

WYOMING SUCCESSFUL WILDCAT

Bonanza, Big Horn County: Bonanza Oil Co. 1 Gov't., C SW NE 26-49n-91w, TD 2,528 ft., flowed 250 bbl. oil per day, 5½-in. casing 2,483 ft., Muddy 270 ft., Dakota 640 ft., Tensleep 2,483 ft.

WYOMING WILDCAT FAILURES

Little Grays River, Lincoln County: Delhi Oil Corp. 1 Unit, C NW SE 25-37n-117w, TD 4,699 ft., dry, Nugget 1,520 ft., Ankarah 2,107 ft., Thaynes 2,737 ft., Woodside (?) 4,460 ft.

LeRoy, Uinta County: Shell Oil Co. 2 Unit, NE SW SE 33-16n-117w, TD 5,557 ft., dry, Twin Creek 1,058 ft., Ankarah 1,772 ft., Thaynes 2,740 ft., Woodside 3,430 ft., Dinwoody 4,025 ft., Phosphoria 4,393 ft., Weber 4,580 ft.

East Corner, Weston County: Dennis Oil Co. 1 Gov't. C NW NE 4-48n-66w, TD 691 ft., dry.

MONTANA WILDCAT FAILURE

Liberty Hills, Liberty County: Texas Co. 1 H. F. Mansfield, C SW 12-37n-7e, TD 2,560 ft., dry, Colorado 1,250 ft., Blackleaf 1,965 ft., third Bow Island 2,439 ft.

UTAH WILDCAT FAILURES

Argyle, Duchesne County: McCarthy Gas & Oil Co. 1 Gov't., NE NE NW 14-11s-12e, TD 2,240 ft., dry.

Lime Ridge, San Juan County: Al Hill et al 1 State, C NW 32-40s-20e, TD 3,214 ft., dry.

Mitten Buttes: Fulton-McKim & Hadlock 1 Gov't., NW SE SE 9-41s, 18e, TD 1,645 ft., dry.

NORTHERN NEW MEXICO SUCCESSFUL WILDCAT

Hart Mountain, San Juan County: Delhi Oil Corp. 1 Atlantic-Federal, NE SE NE 25-31n-10w, TD 5,177 ft., flowed 994,000 cu. ft. gas daily, Cliffhouse 4,945 ft.

NORTHERN NEW MEXICO WILDCAT FAILURES

South Governador, Rio Arriba County: Thomas Doswell et al 1 Scott-Federal, C NE NW 10-26n-6w, TD 7,562 ft., dry.

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Denton-Spencer Co., Ltd., Calgary, Alberta, Canada.

Pictured Cliffs 2,983 ft., Cliffhouse 4,685 ft., Point Lookout 5,290 ft., Dakota 7,200 ft.

Gavilan: A. G. Hill 1 Gardner, C NE 15-25n-2w, TD 3,484 ft., dry.

A. G. Hill 1 White, C NW 36-25n-2w, TD 360 ft., dry.

Rosa: Penrose & Tatum 3 Rosa, SW SW NW 16-31n-5w, TD 3,510 ft., dry. Pictured Cliffs 3,178 ft.

Stoney Buttes, San Juan County: Southern Union 1 Santa Fe, NE NW NW 7-21n-13w, TD 3,706 ft., dry. Dakota 3,520 ft.

WESTERN NEBRASKA WILDCAT FAILURES

West Grant, Perkins County: H. C. Arnold 1 fee, SW SW NE 11-10n-40w, TD 3,596 ft., dry. Niobrara 2,220 ft., Greenhorn 2,698 ft., Muddy 2,847 ft., Dakota 2,903 ft., Fuson 3,197 ft., Lakota 3,247 ft., Morrison 3,596 ft.

H. C. Arnold 1 Hutsell, SE SE NE 3-9n-40w, TD 3,600 ft., dry. Niobrara 2,262 ft., Greenhorn 2,760 ft., Muddy 2,899 ft., Dakota 2,957 ft., Fuson 3,181 ft., Lakota 3,262 ft., Morrison 3,582 ft.

Illinois-Ind.-Ky.

New O'Hara Oil Pool For St. Wendell Area

A NEW oil discovery, located 2 miles south of St. Wendell in the extreme western part of Vanderburgh County, less than a half mile from the Posey County line, in Indiana, has been made by Barron Kidd at his 1 Millard Harris, SW SE SW 18-5s-11w.

The well had good saturation in O'Hara lime, logged at 2,652-62 ft., and in a drill-stem test, with tester open 60 minutes, filled 2,600 ft. with clean oil. A good showing of gas was obtained, gas being at the surface within 13 minutes after the tester was opened. Hole was deepened to 2,792 ft. and casing run through the prospective pay zone to 2,682 ft.

Location of the discovery is only a half mile north of the St. Wendell East pool, but production there is from Cypress and Aux Vases.

This is the second discovery for this operator within 2 weeks. The first is located 4 miles southeast of West Salem and about 2 miles east of the Bone Gap pool, in Edwards County, Illinois, where his 1 Addison Cowling, NW SE SE 4-1s-14w, is waiting production tests. It had good saturation in O'Hara lime logged at 2,987-92 ft. It got strong gas showings and flowed clean oil in a drill-stem test, previously reported.

A new pay zone, the Benoist sand, is being opened in the Ellery West pool, 2 miles southeast of Goldengate, Wayne County, where Illinois Mid-Continent Co. 1 Jones, SW SE SE 23-2s-9e, has been put on the pump for completion. It produced at the rate of 5 bbl. of net oil per hour natural on initial tests. Its Benoist sand pay was logged at 3,108-16 ft. Other production in the area, opened last August, is from the Lower O'Hara and Rosiclare horizons.

Two locations to the south in the SW NW NE 26-2s-9e, N. V. Duncan has another prospective producer from the same pay at 1 Wylie, where 1,700 ft. of clean oil and 20 ft. of oil-cut mud was recovered in a drill-stem test. Benoist saturation in this well is at 3,119-32 ft. At last report, hole was being drilled ahead to the lower pay zones.

ILLINOIS WILDCAT FAILURES

Edgar County: C. G. Berger 1 Stickler, NW SW NW 26-13n-12w, dry, TD 1,002 ft.

Fayette County: R. L. Robbins et al 1 Enlow, SE SE SW 28-4n-1w, dry, TD 1,460 ft.

Hamilton County: C. E. Skiles 1 Rudemacker, SE SE SE 23-3s-5e, dry, TD 3,385 ft.

Lawrence County: J. M. Partin 1 Piper, NE NE SW 23-4n-13w, dry, TD 3,097 ft.

Richland County: A. J. Slagter, Jr., 1 Berger, SE SE SE 21-3n-14w, dry, TD 3,206 ft.

George & Wrather 1 Marshall, NE NW NW 29-3n-14w, dry, TD 3,277 ft.

Saline County: J. D. Turner 1 Bramlett, SW SE NE 19-8s-7e, dry, TD 2,240 ft.

Wayne County: V-T Drilling Co. 1 Gaithes-McLin, NW SE NW 30-1s-9e, dry, TD 3,440 ft.

WESTERN KENTUCKY WILDCAT FAILURES

Daviess County: John F. Miller 1 Waitman, SE SE NW 6-P-29, dry, TD 1,620 ft.

Henderson County: Yunker-Basin et al., 1 Gabhart, 12-P-21, dry, TD 2,836 ft.

EASTERN KENTUCKY

ASHLAND.—In Breathitt County, Jack Kindred et al is drilling at 325 ft. at 1 Edna Hurst located on Boone Fork in the northwestern part of county. The well will test down to and through the Big Six sand.

On the north end of Big Sandy gas field, Lawrence Endicott completed 1 Elbert Preston as a gas well in Devonian black shale. At total depth of 2,415 ft., the well gaged 150,000 cu. ft. of gas daily with rock pressure of 200 psi. In the same field but in the Pike County sector, Pittsburgh Consolidated Coal Co. completed 1 Alamander Burke for 100,000 cu. ft. of gas daily from Devonian shale at a total depth of 4,035 ft.

EASTERN KENTUCKY WILDCAT FAILURE

Morgan County: Bert Kiser et al 2 Willie Elam, 8-Q-75, dry, TD 1,425 ft., Cornif-erous 1,360 ft., slight show of gas, water.

Canadian Fields

Canadian Gulf Extends Redwater Field Limits

CALGARY.—Canadian Gulf Oil Co. has extended the producing area of Redwater oil field ¼ mile south of former boundaries with completion of Gulf-J. Roloff 16, on a quarter section of Crown Reserve lease purchased by the company last November. The well, now being acidized, is an assured producer with about 45 ft. of D3 oil zone porosity above the water line. Located in LSD 16, 10-56-21w4, it completed drilling at 3,270 ft., and has 5½-in. casing set 30 ft. above bottom. D3 zone was topped at 3,237 ft., 1,185 ft. subsea, with porosity coming in at 1,193 ft. subsea, or about 45 ft. above the indicated water line. Acid treatment is now being applied preliminary to placing the well on steady production.

Canadian Delhi Oil, Ltd., carrying out a large natural-gas exploration program, has found gas at two of its four current drilling wells in Alberta. The strikes, at Link Lake and Castor, raise the company's number of gas wells to six since exploration was started a few months ago. In addition, the company has purchased gas wells drilled by other operators in three areas in Alberta. A fifth drilling rig will be added in the immediate future. Besides its gas strikes, Delhi has also completed three dry holes.

Delhi-Socony-Link Lake 1, LSD 8, 34-32-17w4. 9 miles north of Craigmyle and 85 miles northeast of Calgary, is a basal Cretaceous sand discovery,2-3 miles west of gas bearing wells previously drilled by other firms. A 39-minute test at 4,099 ft. brought a gas flow building up to 5,980,000 cu. ft. daily, plus evidence of a little oil content. Pipe recovery was 1 ft. of oil. Coring is now continuing for test of objectives down to and including the Madison Limestone. The Link Lake well is owned 50 per cent by Delhi and 50 per cent by Socony-Vacuum. It is on a 5,760-acre lease block secured under farmout by the team.

Delhi-Amcan-Castor 1, LSD 3, 20-38-14w4, in the vicinity of Castor town and 35 miles northeast of the Link Lake discovery, has found natural gas in the Viking sand. A 68-minute drill-stem test of the Viking at 3,189 ft. gave a gas rate of 1,515,000 cu. ft. daily. Pipe recovery was 30 ft. of mud. The well is now heading on for its basal Cretaceous objectives. It is about 2 miles northwest of Bailey-Michel-Castor 1, Cretaceous gas discovery. The new well is owned 50 per cent by Delhi and 50 per cent by Amcan Oil Corp.

The Calgary independent team that struck light crude oil at its exploratory well in the Camrose area about 1½ weeks ago ran four drill-stem tests in the Lower Cretaceous and showed moderate flows of natural gas but no oil recovery. Coring and testing in the Cretaceous is being continued. The well is backed by Anglo Canadian Oil Co., Ltd., Home Oil Co., Ltd., and Calgary & Edmonton Corp., Ltd. The interesting well is Anglo-Home-C. & E.-Camrose 3, LSD 14, 29-47-20w4, located 13 miles northeast of Socony-Duhamel 29-14, D2-D3 Devonian oil success, and 4¾ miles northwest of Camrose town. Best Cretaceous gas flow came from the interval at 3,668-88 ft. With the valve open 45 minutes, maximum natural-gas flow rate was 600,000 cu. ft. daily, plus recovery of 640 ft. of slightly salty mud. The 3 well has since cored to 3,902 ft., and is heading for its Devonian prospects.

CANADIAN WILDCAT FAILURES

Bison-Model-Acheson 1, LSD 12, 17-53-26w4, TD 5,100 ft.

Socony-Delhi 2, LSD 3, 20-32-18w4, TD 5,717 ft.

Imperial-Kimiwan Lake 1, LSD 15, 21-78-20w5, TD 7,644 ft.

McColl-Union 6D-25-6-7, LSD 6, 25-5-7w4, TD 2,645 ft.

Louisiana-Arkansas

New Pay Sand Indicated In Simsboro Gas Field

SHREVEPORT.—A possible new gas producing horizon has been tapped in Simsboro field, Lincoln Parish, at C. H. Murphy & Co. and Pan-Am Southern Corp. 2 Givens, 2-17n-4w. A drill-stem test run at 5,289-5,335 ft. in the Rodessa recovered 120 ft. of gas-cut mud. Top pressure on the test was 675 psi. The well is coring ahead below 5,335 ft. The same operators' 1 Givens, 11-17n-4w, which did not have shows in the new section tested by the second well, is running drill-stem tests at 9,257-95 ft.

Arkansas.—In Union County, Curtis Kinard's deep exploration in East Schuler field, the 1 Burns, 13-18s-17w, has been shut in waiting on orders. The test flowed fluid, consisting of 80 per cent oil and 20 per cent salt water, from perforations at 7,610-14 ft. and 7,625-39 ft.

NORTH LOUISIANA WILDCAT FAILURE

LaSalle Parish: J. S. Michael & Co. 1-A Nebo Oil Co., 9-8n-2e, dry, TD 4,330 ft., no tops reported.

ARKANSAS WILDCAT FAILURE

Little River County: E. H. R. Sabens 1 S. D. Madison, 12-13s-33w, dry, TD 3,550 ft., no tops reported.

LEGAL

Sealed Bids will be received at the Jicarilla Indian Agency, Dulce, New Mexico, until 3:00 o'clock P.M., MST, February 20, 1951, and then publicly opened for oil and gas leases on 47 Tracts of Jicarilla Tribal Indian lands within the Jicarilla Indian Reservation, totaling approximately 117,760 acres. Each tract contains approximately 2560 acres, and are located in the Rio Arriba and Sandoval Counties of New Mexico. For complete description of the land and location, provisions and stipulations of the leases to be sold, address the Superintendent, Jicarilla Indian Agency, Dulce, New Mexico. Guy Hobgood, Superintendent.

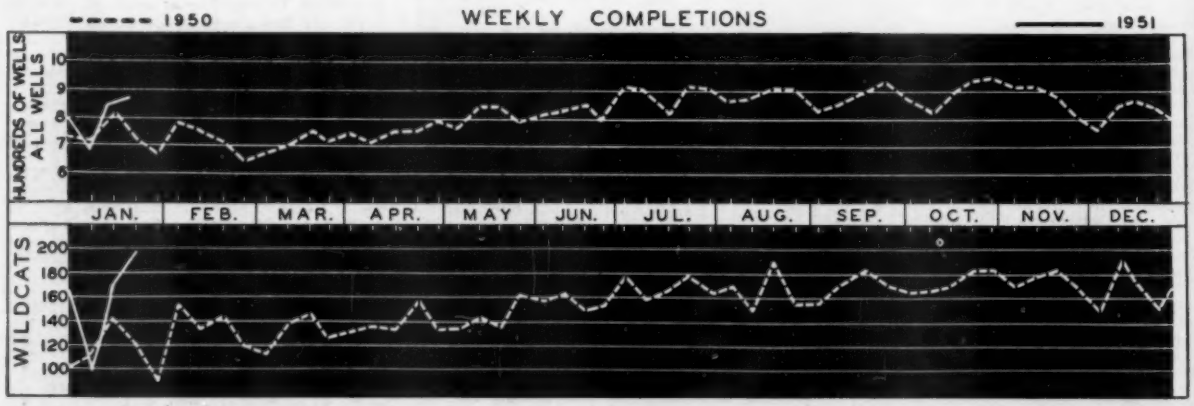
CURRENT STATISTICS

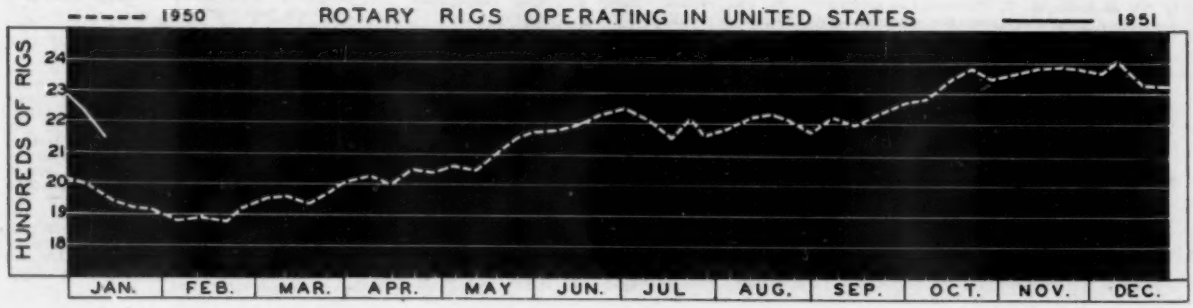
EXPLORATION

WEEKLY WELL COMPLETIONS . . . . . WEEK ENDED JANUARY 20, 1951

	Total of all wells					Jan. 20		Wildcat completions and discoveries					Cumulative total, 1951				
	Comp.	Oil	Gas	Dry	Footage	1951	1950	Oil	Dist.	Gas	Dry	Total	Oil	Dist.	Gas	Dry	Total
New York	9	5	0	*4	13,016	26	42	0	0	0	0	0	0	0	0	0	0
Pennsylvania	15	7	2	†6	25,462	50	70	0	0	0	0	0	0	0	0	1	1
West Virginia	9	2	5	2	23,702	36	31	0	0	0	0	0	0	0	0	1	1
Ohio	15	5	5	5	34,172	47	48	0	0	0	1	1	0	0	0	3	3
Indiana	9	4	1	4	13,270	73	75	0	0	0	0	0	1	0	0	8	9
Kentucky	14	3	2	9	28,027	67	57	0	0	0	3	3	1	0	0	12	13
Illinois	38	22	0	16	86,076	142	147	0	0	0	8	8	2	0	0	21	23
Michigan	12	5	1	6	30,318	35	51	0	0	0	6	6	0	0	0	16	16
Kansas	107	59	7	‡41	335,087	231	177	2	0	0	15	17	9	0	1	42	52
Nebraska	8	4	0	4	26,348	13	6	0	0	0	4	4	0	0	1	7	8
Oklahoma	119	67	2	50	446,557	338	250	6	0	1	17	24	19	0	3	47	69
Texas	377	230	16	131	1,780,617	959	849	16	5	4	77	102	31	5	8	143	187
North Central (Dist. 7-B & 9)	91	48	0	43	311,731	271	233	5	0	0	25	30	11	0	0	55	66
West (Dist. 7-C & 8)	126	82	0	44	713,948	267	210	4	0	0	22	26	5	0	0	25	30
Panhandle (Dist. 10)	16	12	4	0	49,444	45	96	0	0	0	0	0	0	0	0	2	2
Eastern (Dist. 5, 6, & 6-P)	33	24	0	9	158,225	62	70	0	0	0	7	7	0	0	0	10	10
Gulf Coast (Dist. 2 & 3)	69	40	10	19	374,415	177	124	4	5	4	11	24	11	5	7	26	49
Southwest (Dist. 1 & 4)	42	24	2	16	172,854	137	116	3	0	0	12	15	4	0	1	25	30
Louisiana	39	24	5	10	259,703	138	175	0	0	0	5	5	2	0	0	19	21
Northern	19	12	4	3	68,318	72	104	0	0	0	1	1	0	0	0	9	9
Southern	20	12	1	7	191,385	66	71	0	0	0	4	4	2	0	0	10	12
Arkansas	10	8	0	2	27,238	29	28	0	0	0	1	1	0	0	0	6	6
Mississippi	5	5	0	0	37,682	14	17	1	0	0	0	1	2	0	0	2	4
Southeastern States	2	0	0	2	14,006	6	4	0	0	0	1	1	0	0	0	2	2
Montana	14	12	0	2	26,991	14	16	0	0	0	1	1	0	0	0	1	1
Wyoming	15	10	0	5	65,098	39	45	1	0	0	3	4	1	0	0	10	11
Colorado-Utah	7	3	0	4	22,101	14	14	0	0	0	4	4	0	0	0	6	6
New Mexico	22	13	3	6	101,073	37	42	0	0	1	6	7	0	0	3	6	9
California	27	17	1	9	124,653	89	102	2	0	0	6	8	3	0	0	20	23
Miscellaneous	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
Total United States	873	505	50	318	3,521,197	2,398	2,247	28	5	6	158	197	71	5	16	374	466
Total previous week	848	460	77	311	3,321,498	....	....	31	0	8	133	172	43	0	10	216	269
Total January 20, 1950	716	431	54	231	2,736,260	....	....	22	3	6	90	121	63	5	16	290	374

Service wells included: *4, †6, ‡2.





DAILY AVERAGE PRODUCTION FOR WEEK

	Jan. 20 crude oil	B. of M. Jan. demand	Jan. 13 crude oil
Alabama	2,750	2,400	2,650
Arkansas	79,550	88,000	82,050
California	963,200	960,000	963,700
Colorado	73,100	68,000	75,600
Eastern	60,750	67,000	59,100
Florida	1,525	1,600	1,500
Illinois	162,400	176,000	163,200
Indiana	28,500	31,000	28,800
Kansas	316,700	301,000	289,850
Kentucky	30,300	31,000	30,200
Louisiana	595,675	612,000	596,175
North Louisiana	116,400	.....	116,900
South Louisiana	479,275	.....	479,275
Michigan	45,100	47,000	44,200
Mississippi	98,950	114,000	101,100
Montana	22,100	23,000	21,900
Nebraska	8,500	6,000	8,100
New Mexico	134,250	138,000	134,250
Oklahoma	494,900	470,000	493,550
Texas	2,658,700	2,395,000	2,400,375
Dist. 1 (Southwest)	33,250	.....	31,500
Dist. 2 (Southwest)	161,925	.....	141,425
Dist. 4 (Southwest)	249,075	.....	221,650
Dist. 3 (Gulf Coast)	471,675	.....	425,400
Dist. 5 (Eastern)	48,700	.....	42,625
Dist. 6 (Eastern)	107,025	.....	94,375
East Texas field	272,000	.....	272,000
Dist. 7-C (West)	81,200	.....	72,925
Dist. 8 (West)	898,250	.....	784,625
Dist. 7-B (W. Central)	81,000	.....	73,425
Dist. 9 (N. Central)	154,600	.....	150,425
Dist. 10 (Panhandle)	90,000	.....	90,000
Utah	3,200	4,000	3,300
Wyoming	181,900	180,000	180,700
Total United States	*5,962,050	5,715,000	5,680,300
Change from previous week, up	281,750		
Canada	105,370		106,445
Total U. S. production January 1-January 20			†123,523,295 bbl.
Same period last year (crude plus cond.)			99,185,440 bbl.

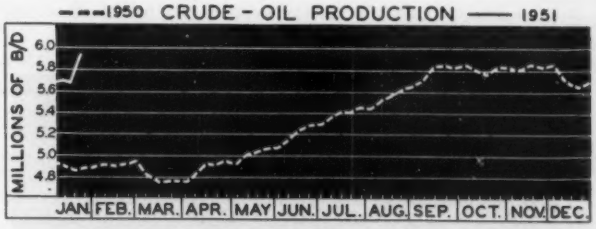
*Not incl. 103,935 bbl. condensate. †Incl. 2,036,370 bbl. condensate.

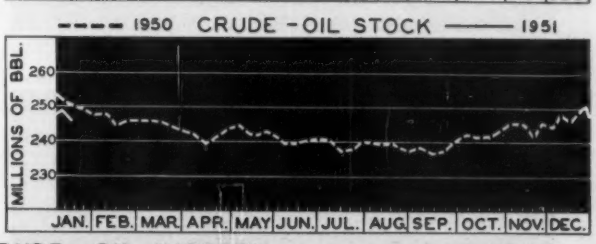
CRUDE-OIL STOCKS BY STATES OF ORIGIN*

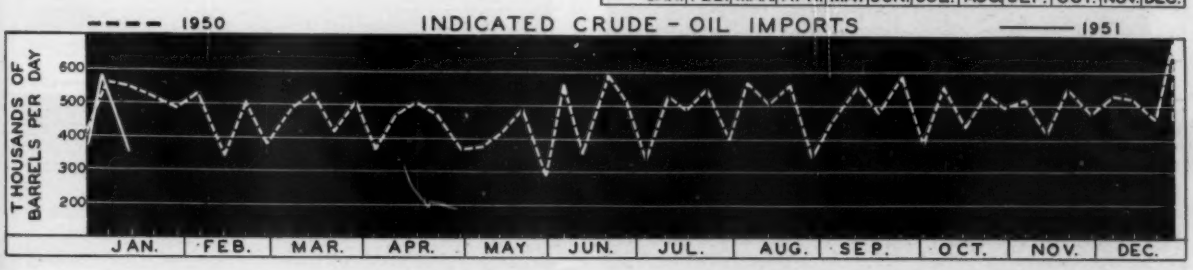
(Thousands of barrels daily)

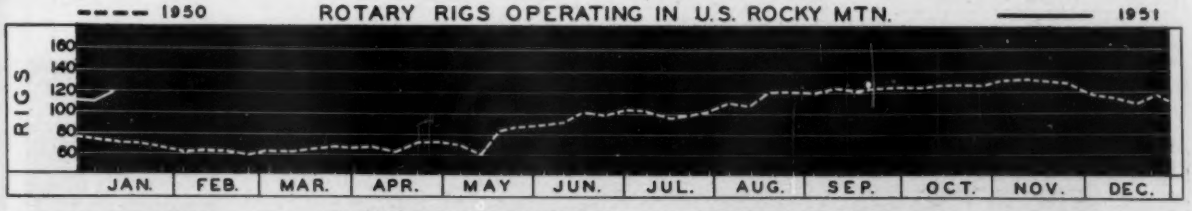
	Jan. 13, 1951	Jan. 6, 1951	Jan. 14, 1950
Pennsylvania Grade	2,088	2,090	2,756
Other Appalachian	1,249	1,230	1,751
Illinois, Indiana, Michigan	9,944	10,291	11,270
Arkansas	2,531	2,440	3,045
Louisiana	14,537	13,903	14,160
North	3,043	2,670	3,726
Gulf	11,494	11,233	10,434
Mississippi	2,869	2,779	2,429
New Mexico	7,261	7,043	7,647
Oklahoma and Kansas	38,605	38,564	37,348
Texas	116,640	118,649	111,133
East Texas	14,133	14,510	15,489
West Texas	46,131	46,952	40,846
Texas Gulf	27,819	28,394	28,730
Other Texas	28,557	28,793	26,068
Rocky Mountain	11,803	11,740	13,329
California	31,457	31,408	37,821
Foreign	6,735	7,986	7,178
Total	245,719	248,123	249,867

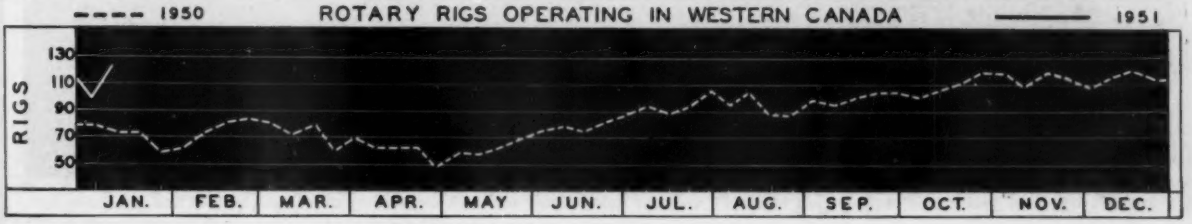
*Bureau of Mines.









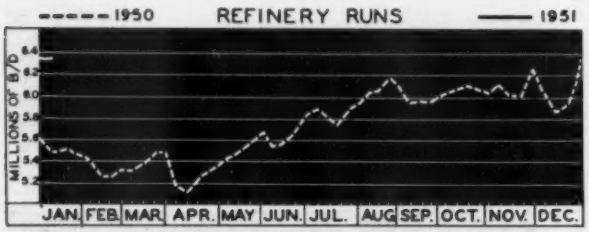


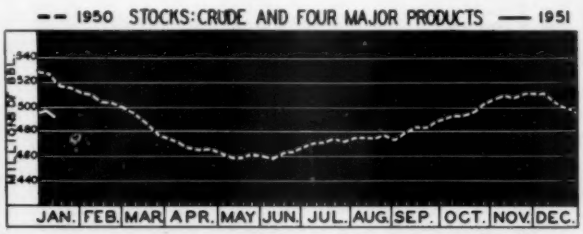
A.P.I. REFINERY REPORT, JANUARY 13

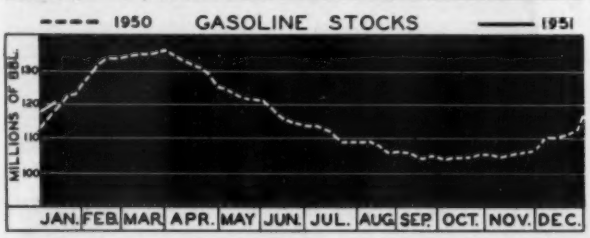
(Thousands of barrels)

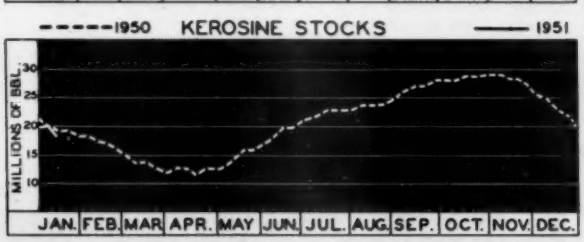
District—	Daily avg. crude runs	Daily average production				Stocks at refineries, bulk terminals, in transit and in pipe lines				Bureau of Mines, January 1950				
		Gasoline*	Kerosine	Distillate	Residual	Gasoline†	Kerosine	Distillate	Residual	Daily avg. crude runs	Daily average production: Gasoline*	Kerosine	Distillate	Residual
East Coast	962	383.6	40.4	310.1	272.0	23,760	7,389	18,550	9,264	853	349.1	40.3	184.1	209.3
Appalachian:														
District 1	95	43.9	5.6	20.9	12.7	2,940	331	671	341	94	40.8	7.4	13.8	12.2
District 2	71	32.6	5.3	7.4	17.3	1,150	142	106	116	69	32.1	5.1	8.6	16.1
Ind., Ill., Ky.	1,163	572.8	72.9	219.6	191.7	26,010	3,939	8,933	3,264	1,001	508.4	72.5	172.1	176.4
Okla., Kans., Mo.	540	300.9	19.1	134.6	66.0	12,735	817	7,545	1,127	448	253.7	20.1	88.8	60.0
Inland Texas	216	155.6	11.4	33.6	38.9	3,923	485	926	625	194	133.2	13.1	25.2	37.6
Texas Gulf Coast	1,589	738.8	132.7	370.8	286.0	19,988	2,681	11,733	5,435	1,270	578.5	111.9	373.8	242.1
La. Gulf Coast	500	241.1	63.3	147.1	80.0	8,567	970	3,230	2,143	447	207.7	63.3	97.5	51.7
N. La. and Ark.	78	30.6	8.9	17.3	8.7	2,511	287	842	119	68	28.7	7.2	11.8	13.6
Rocky Mountain:														
New Mexico	14	7.1	.4	31.4	3.0	107	25	61	30	13	7.6	.5	2.0	3.3
Other Rocky Mtn.	196	82.9	11.3	38.9	49.9	3,737	252	1,560	794	174	83.8	6.6	31.8	40.6
California	946	383.7	7.6	134.3	371.8	15,781	709	10,400	18,417	852	351.7	11.4	138.5	346.5
January 13, 1951	6,370	2,973.6	378.9	1,466.0	1,398.0	121,209	18,027	64,557	41,675	5,483	2,575.3	359.4	1,048.0	1,209.4
January 6, 1951	6,347	3,007.1	379.6	1,361.1	1,350.3	119,308	19,510	68,198	41,914	.....	.....	.....	.....	.....
January 14, 1950	5,487	2,632.7	382.7	1,085.1	1,151.3	118,844	19,217	71,075	60,003	.....	.....	.....	.....	.....

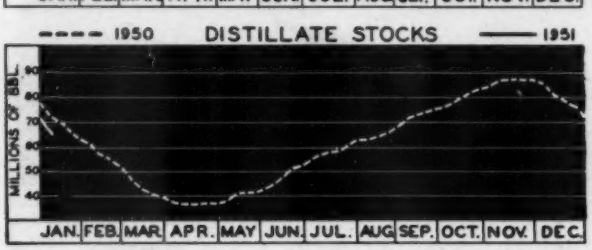
*At refineries including natural blended. †Finished and unfinished.

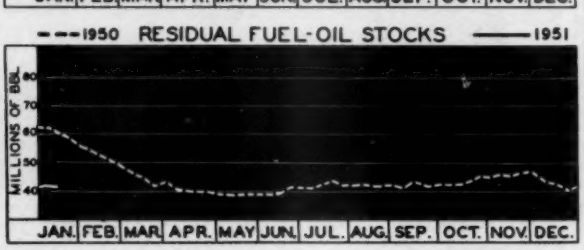


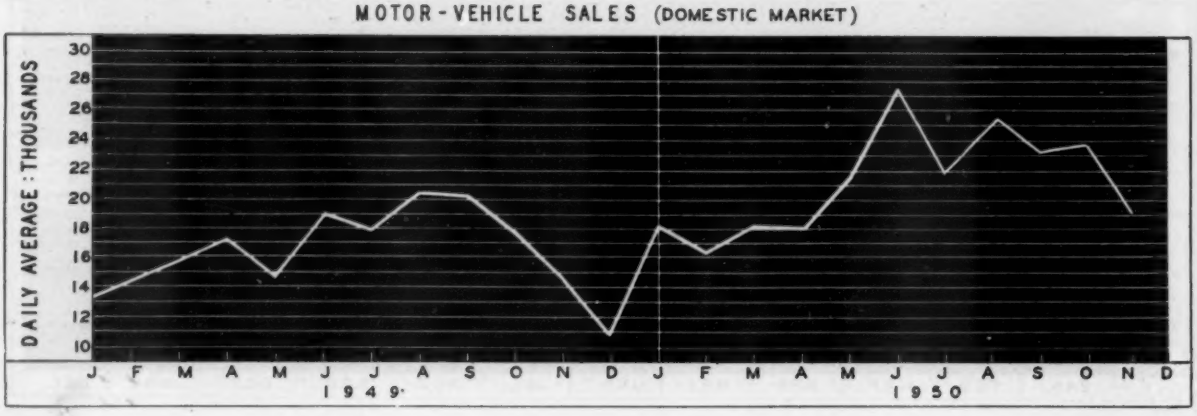












CRUDE PRICES
GRAVITY SCHEDULE

	Signal Hill, Calif.‡	Oklahoma, Kansas	Gulf Coast Tex.*	West Tex.†
18-18.9	$1.93	....	....	....
19-19.9	1.98	....	....	....
20-20.9	2.03	$2.25	....	$2.12
21-21.9	2.07	2.27	....	2.14
22-22.9	2.12	2.29	....	2.16
23-23.9	2.18	2.31	....	2.18
24-24.9	2.24	2.33	$2.56	2.20
25-25.9	2.30	2.35	2.58	2.22
26-26.9	2.36	2.37	2.60	2.24
27-27.9	2.41	2.39	2.62	2.26
28-28.9	2.46	2.41	2.64	2.28
29-29.9	2.52	2.43	2.66	2.30
30-30.9	2.57	2.45	2.68	2.32
31-31.9	2.62	2.47	2.70	2.34
32-32.9	2.68	2.49	2.72	2.36
33-33.9	....	2.51	2.74	2.38
34-34.9	....	2.53	2.76	2.40
35-35.9	....	2.55	2.78	2.42
36-36.9	....	2.57	2.80	2.44
37-37.9	....	2.59	2.82	2.46
38-38.9	....	2.61	2.84	2.48
39-39.9	....	2.63	2.86	2.50
40 and above	....	2.65	2.88	2.52

*For crude from Daboval, El Campo, and Sand Point.

†Includes Lea County, New Mexico. Last general price change represented a 50-cent increase becoming effective December 6, 1947.

‡Standard Oil Co. of California.

FLAT CRUDE PRICES

Representative posted schedules per barrel.

East Texas†	$2.65
Kettleman Hills, California*	2.80
Beauregard Parish	2.60
Illinois Basin	2.77
Pecos County, Texas (Yates)	2.35
Bradford, Pennsylvania	4.25
Eastern Ill. and Western Ind.†	2.77
Tomball, Texas Gulf Coast	2.83

*37°-37.9°. †35° and above.

DEMANDS on Mid-Continent refiners for distillate and residual fuels remain high but lack some of the urgency that was evident a few weeks ago. Slightly warmer weather in the high-demand areas to the north has made it possible for some of the utility plants to return part of the load to natural gas and relieve the pressure on residual-fuel suppliers. However, demand is still high, and abnormally cold weather could result in a definite shortage of heavy fuel by next month.

Clean tank cars for distillate fuels are still scarce, but again the scramble for cars and material is not as intense as it was at the end of the year. Distillate stocks in the combined Mid-Continent and North Central districts are about 2,100,000 bbl. greater than at this time last year, but the distribution is not so favorable. Inventories in the Illinois-Indiana-Kentucky district, an area where demand is greater than production, are 770,000 bbl. less than last year. On the other hand, distillate stocks in the Mid-Continent are up 2,868,000 bbl. Surplus material is located in the supplying district, and if demand remains high, clean cars will be scarce until this surplus is moved to the demand areas.

Demands on all refineries for distillate fuels in the 4-week period ended January 13 were 25 per cent greater than in the same period last year, but consideration must be given to the fact that distillate demands last winter were subnormal until the middle of February.

For the 4-week period, increased distillate demands in the Gulf-East Coast area accounted for 83 per cent of the total gains over last year. Also, the major part of the reduction in distillate inventories for the past 4 weeks has been in these districts. The indicated demand for distillates in these areas, including East Coast, Texas Gulf Coast, and Louisiana Gulf Coast, was 41 per cent greater than for same weeks last year.

REPRESENTATIVE QUOTATIONS

Representative spot-market quotation of leading suppliers as of January, 22, 1951. Figures are f.o.b. plant for tank-car shipments in cents per gallon, except for residual fuel oil which shows the price per barrel and wax, in cents per pound.

GASOLINE, KEROSINE, AND FUEL OILS

	Mid-Continent Group 3	New York Harbor (barge)	Texas Gulf Coast
Regular gasoline, 80-82 octane	10½-10½	12-12.75	10¾-11
Premium gasoline, 86-88 octane	11⅛-11½	13.5-13.75	11½-12
42-44 w.w. kerosine	9¼-9⅜	10-10.1	8¾-9
No. 2 straw fuel oil	8⅜-8⅝	9-9.25	7¾-8
No. 6 residual	$1.80-1.90	$2.25-2.30	$1.75-1.90

NATURAL GASOLINE

	Group 3	North Texas	N. La
Grade 26-70	6⅞	6⅜	6⅝
Grade 18-55	8.25	7.75	8.0

LUBRICATING OILS

South Texas

200 vis., No. 2-3 neutral	13-13.5
750 vis., No. 3-4 neutral	16
2,000 No. 5-6 neutral	18-19

LUBRICATING OILS

Mid-Continent

150-160 vis., D bright stock, 0-10 pp.	29-30
200 vis., No. 3 neutral, 0-10 pp.	17.5-18.5

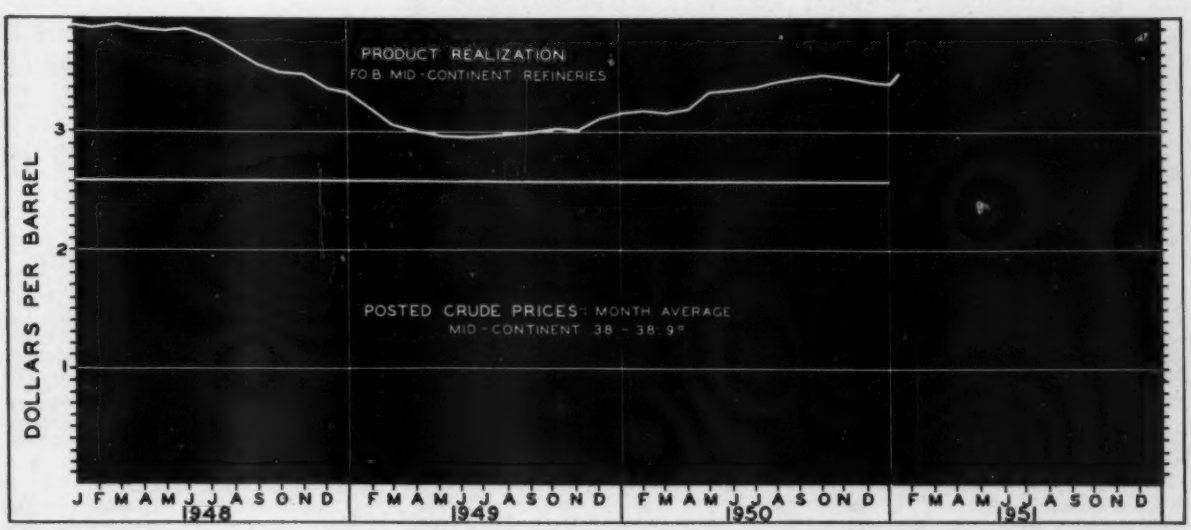
Western Pennsylvania

145-155 vis., 10 p.t. bright stock	32.5
180 vis., 0 p.t. neutral	31.5

WAX

Mid-Continent

132-134 A.M.P.	6.0


PRODUCT REALIZATION
F.O.B. MID-CONTINENT REFINERIES
POSTED CRUDE PRICES: MONTH AVERAGE
MID-CONTINENT 38 - 38.9°
DOLLARS PER BARREL
3
2
1
J F M A M J J A S O N D
1948
F M A M J J A S O N D
1949
F M A M J J A S O N D
1950
F M A M J J A S O N D
1951

In this trend chart refinery realization is based on average Mid-Continent grade crude oil (not 38° gravity only) and average prices for refinery products as published in The Oil and Gas Journal basis Oklahoma (Group 3). Refinery yields confined to gasoline, kerosine, distillate, and fuel oil. Realization averaged $3.56 for week ended January 13, $3.54 for previous week, and $3.19 for January 1950.

Wells Up 6 Per Cent, Footage 15 Per Cent, December '50 Over December '49

by Polly DeArmond

OPERATORS drilled 3,514 wells and 13,522,453 ft. during December (the seventh-ranking month in 1950 as far as number of completions is concerned, and sixth in total footage drilled), to finish a year that broke practically every record previously established for all divisions of the industry. Much of this issue of The Oil and Gas Journal is devoted to a complete resume of activity in all of oildom's branches, and statistics and interpretations pertaining to this monthly summary, as well as cumulative comparisons, will be found elsewhere throughout the magazine.

December vs. December 1949

Comparing December with the corresponding month of 1949, the figures show that completions increased by 199 wells, or 6 per cent, and footage was up 1,767,212 ft., or 15 per cent. The apparent gain in deeper drilling is substantiated by the comparison of average footage per well for the 2 months: 3,848 ft. for December 1950 as against 3,546 ft. in December 1949.

For purposes of pinpointing where fluctuations of work occurred, the nation has been divided into seven sectors: Eastern area, North-Central division, Mid-Continent, Southwestern section, Southern states, Rocky Mountain region, and West Coast. Four groups reflected increases in both wells and footage. The other three areas declined in both categories.

Southwestern section.—Texas and New Mexico combined gained 211 completions, or 16.5 per cent, and 1,123,733 ft., or 21.2 per cent, over December of the preceding year.

Mid-Continent.—This area, made up of Oklahoma, Kansas, Nebraska, and Missouri, reported the second largest numerical increases—up 71 wells, or 9.3 per cent, and 467,632 ft., or 18.9 per cent.

Rocky Mountain region.—This section (including Montana, Wyoming, Colorado, Utah, the Dakotas, and Idaho) had the greatest increases percentagewise in completions and footage: 30 additional wells (or 44.2 per cent) and 93,428 more ft. (or 30.8 per cent) over December 1949.

West Coast.—Drilling in California during December 1950 recorded gains of 21 wells completed, or 14.4 per cent, for 112,428 extra feet, or 18.2 per cent compared with the previous December.

North-Central division.—This Ohio-Kentucky - Illinois - Indiana- Michigan group fell 62 wells, or 10.7 per cent, but was off only 13,267 ft., or 1.1 per cent in footage drilled, from December of the foregoing year.

Eastern area.—New York, Pennsylvania, and West Virginia continued a long trend of decline with a 41-well drop, or 17.4 per cent, and 43,461-ft. loss, or 10.3 per cent.

Southern states.—Together Louisiana, Arkansas, Mississippi, Alabama, Georgia, and Florida showed a decline of 31 completions, or 10.8 per cent, and a very small decrease in footage (some 5,700 ft.) from December 1949.

SUMMARY OF COMPLETIONS—DECEMBER 1950

	Total comp.	Oil	Gas	Dry	Under 2,500 ft.	2,500-5,000 ft.	5,000-7,500 ft.	7,500-10,000 ft.	10,000-12,500-ft.	Over 12,500 ft.	Total footage	Rigs and drilling
New York	41	21	0	20	41	0	0	0	0	0	59,000	58
Pennsylvania	103	51	11	41	96	7	0	0	0	0	169,181	270
West Virginia	50	4	33	13	21	24	5	0	0	0	148,412	§209
Ohio	62	15	24	23	30	32	0	0	0	0	139,245	134
Kentucky	98	39	22	37	72	26	0	0	0	0	210,104	121
Illinois	197	92	3	102	83	114	0	0	0	0	480,812	321
Indiana	86	33	1	52	67	19	0	0	0	0	153,710	214
Michigan	73	32	2	39	36	36	1	0	0	0	189,877	117
Kansas	332	177	29	126	56	275	1	0	0	0	1,048,783	443
Neb., Mo., Iowa	28	17	1	10	13	12	3	0	0	0	95,043	47
Oklahoma	473	289	25	159	136	229	80	8	20	0	1,799,906	891
Texas	1,402	883	37	482	398	466	379	129	24	6	6,181,713	1,424
North	237	124	3	110	121	74	42	0	0	0	719,492	178
West Central	199	96	4	99	108	72	19	0	0	0	509,658	150
West	450	346	0	104	82	108	186	55	13	6	2,445,075	561
Panhandle	62	42	14	6	6	53	2	1	0	0	199,422	103
Eastern	102	75	2	25	12	59	20	11	0	0	469,955	78
Gulf Coast	184	107	11	66	16	52	60	47	9	0	1,101,401	223
Southwest	168	93	3	72	53	48	50	15	2	0	736,710	131
Louisiana	201	113	19	69	58	37	37	33	33	3	1,157,427	307
Northern	114	63	13	38	51	33	19	10	1	0	414,461	132
Southern	87	50	6	31	7	4	18	23	32	3	742,966	175
Arkansas	30	18	0	12	8	14	6	2	0	0	116,559	43
Mississippi	23	10	0	13	0	3	9	5	5	1	175,162	25
Ala., Ga., Fla.	3	2	0	1	0	3	0	0	0	0	10,280	7
Montana	22	16	2	4	13	7	1	1	0	0	58,896	45
Wyoming	58	37	2	19	7	26	17	8	0	0	291,455	162
Colorado	14	4	2	8	4	3	6	1	0	0	58,409	47
Utah	1	0	0	1	1	0	0	0	0	0	387	19
New Mexico	47	29	11	7	12	15	8	9	3	0	239,162	145
California	167	126	3	38	40	79	31	9	5	3	731,082	218
Miscellaneous	§	0	0	3	2	1	0	0	0	0	7,848	§16
Total December 1950	3,514	†2,008	227	*1,279	1,194	1,428	584	205	90	13	13,522,453	‡5,279
Total November 1950¶	3,982	2,211	230	1,541	1,384	1,619	644	230	87	18	15,077,759	5,317
Total December 1949	3,315	1,877	254	1,184	1,338	1,264	463	173	67	10	11,755,236	4,607
Cumulative 1950¶	43,279	24,430	2,843	16,006	15,764	17,302	6,800	2,288	968	157	159,287,865	....
Cumulative 1949	39,038	22,042	2,887	14,109	15,149	15,913	4,939	1,996	904	137	138,002,964	....
Western Canada	82	59	2	21	8	40	33	1	0	0	340,292	113
Cumulative 1950	1,017	759	41	217	81	632	291	12	1	0	4,013,048	....

*Incl 81 service wells: N. Y. 20, Pa. 38, Ohio 2, Ill. 1, Kans. 4, Okla. 4, No. Tex. 9, W. Tex. 1, E. Tex. 1, So. La. 1. †Incl. 42 distillate wells: Okla. 11, W. Tex. 5, E. Tex. 6, Tex. Gulf 6, S.W. Tex. 1, No. La 4, So. La. 5, Ark. 1, Miss. 3. ‡Incl. all wells drilling and/or rigged up at end of month. §Misc. comp. incl. 2 Dakotas and 1 Idaho; misc. rigs incl. Ariz. 4, Dakotas 5, Idaho 2, Nev. 5. W. Va. rigs incl. Md. 8.

EQUIPMENT MEN . . . in the News

Art Moore, Ralph Ruse Form Diamond Drilling Co.

J. A. MOORE

With offices in Compton, Calif., J. Arthur Moore has joined Ralph Ruse as a partner in Diamond Drilling Co. For the past year and a half, Ruse has represented Drilling & Service Co., of Dallas, on the West Coast, handling Truco diamond bits and D. & S. core barrels. This service company sells and rents equipment or contracts for diamond coring on a footage basis. It is also the world sales representative for Soll Telescoping core barrel.

Art Moore was one of the founders of Oil Base, Inc., Compton, and served as vice president in charge of sales for that company for 5 years. He was with Baroid, prior to the formation of Oil Base, Inc.

Ralph Ruse represented Oil Base, Inc., in California, the Rocky Mountains, and the Mid-Continent. For the past year and a half he has represented Drilling & Service Co. under the name of Diamond Drilling Co. Prior to these connections, he was a mud engineer with Baroid.

Also associated with Diamond Drilling in sales and service capacities are Don Leidecker, Jack Flanakin, Bill Evdokimoff, Whitey Fuller, and Van Keenan.

Badger Reports Progress On Kent Refinery Project

Work is now going rapidly ahead on the new Kent refinery project of the Anglo-Iranian Oil Co. for which E. B. Badger & Sons (Great Britain) Ltd., have been appointed the overall coordinating contractors.

About 800 acres of the company's property now being developed on the south side of the Isle of Grain which lies at the junction of the Thames and Medway estuaries.

Work at present consists of road construction, site preparation, and foundations. The first major item to be completed will be the crude-oil topping unit which is scheduled for completion in early 1952. The second stage of the project includes plant for lubricant manufacture and for improvement of products from the distillation unit.

New jetties will be capable of berthing the largest tankers contemplated, including those of 28,000 dwt. and upwards in the fleet of British Tanker Co., the Anglo-Iranian shipping organization.

When complete, the refinery will provide permanent employment for about 1,500 people and will add 40,000 bbl. per day to the refinery capacity of Great Britain.

Conoflow Announces Koch As Sales Vice President

J. C. KOCH

R. B. Werey, president, has announced the appointment of John C. Koch to vice president in charge of sales of Conoflow Corp., manufacturers of valves and pneumatic control equipment.

Koch joined Conoflow in 1945, and has been acting in the capacity of general sales manager in Philadelphia until his recent promotion.

Previously associated with one of the major instrument companies, he has been active in sales engineering work in the industrial control field for many years. Koch attended Rensselaer Polytechnic Institute.

Oil Men's Club Presents Gift to John D. Mayo

In Tulsa a group of business men, chiefly from the oil fraternity, meet at the "Coffee Club" at the Mayo Hotel. The group has some 50 semi-regular members and Frank Weimer, independent oil man, is the year's president. Making a presentation to John D. Mayo, president of Mayo Hotel Corp., are: Forrest Lindsay and Barney Feagin, Sr., both independent oil producers, and Salty Clark, Lucey Products Co.

A. O. Smith Corp. Tubular Division Advances Creden

T. H. Creden, eastern district tubular products sales manager for A. O. Smith Corp., has been appointed assistant manager of A. O. Smith's Tubular Division at Milwaukee.

T. H. CREDEN

W. D. WOOD

In his new assignment Creden will aid Division Manager Dennis F. McCarthy, whose responsibilities have been expanded to include those of vice president and general manager of A. O. Smith Corp. of Texas, operators of a new pipe mill at Houston. J. J. Bohmann, coordinator of distribution and sales, will continue in this capacity in the handling of customer contacts.

Creden joined A. O. Smith in 1935 and has been associated with the company's tubular and vessel sales activities ever since, operating in the Southwest from Tulsa, Dallas, and Corpus Christi from 1935 to 1941. From 1941 until 1947, he was stationed at the Milwaukee headquarters of A. O. Smith. In July 1947 he went to New York to direct the company's line-pipe sales in the eastern states.

Succeeding Creden in New York is Walter D. Wood, who moves from the post of Boston branch manager, where he headed sales of A. O. Smith products. Wood joined A. O. Smith in 1946 in welding-electrode sales work at Pittsburgh.

Cooper-Bessemer Increases San Francisco Staff

Cooper-Bessemer Corp., builder of diesel engines, gas engines, and compressors, has announced the appointment of Walter H. Kraemer to its field sales and service office in San Francisco.

A graduate of Purdue University in 1948, Kraemer holds a B.S. degree in mechanical engineering. Since graduation he has been associated with Cooper-Bessemer where he has been actively engaged in sales efforts.

Kraemer has also been associated with Cooper-Bessemer's recent devel-

opment of new nodular iron, working directly under T. E. Eagan, Cooper-Bessemer chief metallurgist, and L. F. Williams, assistant to the president, who has been directing the program.

Billue Joins Hydrocarbon Storage as Ass't. Manager

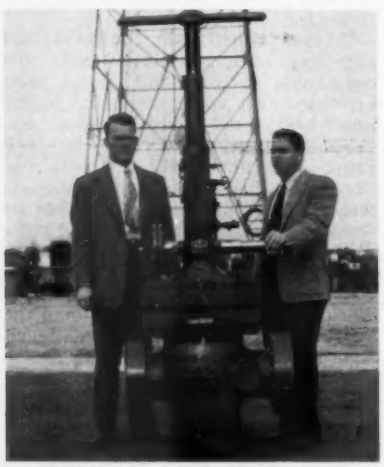
G. H. BILLUE

G. H. (Smoky) Billue has become assistant manager of Hydrocarbon Storage, Inc., of Fort Worth, a Sid Richardson interest.

Billue will be in charge of engineering development and sales of underground storage of butane and propane and will be headquartered at Wichita Falls, Tex.

Preceding this present appointment, Billue has served with other Richardson companies as construction superintendent on construction of a carbon-black plant at Odessa, a gasoline plant at Kermit, Tex., and most recently remodeling of the refinery at Texas City, Tex.

Otis Officials Show 10,000 Psi. Safety Valve



Herbert Otis, Jr., left, vice president of Otis Pressure Control, Inc., and Curtis Kizer, an Otis engineer, stand beside a 6-in., 10,000-psi. "Type XDK" Otis surface safety valve for The Taylor Mayfair Properties. The valve is to be installed on a 12-in. gathering trunk at a point immediately before the gas enters the plant. Unsafe pressure variations beyond predetermined settings will automatically actuate the high-pressure pilot, where Kizer's hand rests, which will cause the gate valve to close. The resulting rise in pressure in the trunk line will actuate similar Otis safety valves installed at the several well heads in the system, causing them to close automatically.

Oilwell Makes Engineering And Sales Advancements

Fred F. Murray, president of Oil Well Supply Co., has announced the appointments of M. F. Hazel as director of engineering and Alex Quayle as chief engineer in charge of all product design.

Melvin Dixon, district manager of Oilwell's Illinois district, has been named manager of the West Texas district, with headquarters at Midland, Tex., according to V. J. Waters, Central Midwest division manager.

F. F. MURRAY

ALEX QUAYLE

Dixon succeeds T. E. Bowers who has been appointed to the newly created position of district merchandise manager of the West Texas district. Hazel has served as Oilwell's general manager of sales since January 1, 1948. Quayle was chief engineer in charge of product design at Imperial Works, Oil City, Pa., Oilwell's principal manufacturing plant. In his new position he will be located at the company's home office in Dallas. Joining Oilwell in 1936, he served in branch stores and as a field salesman until February 1943, when he became manager of the Grandville, Mich., store. In July 1945 he was named assistant district manager of the Illinois district and was promoted to district manager in October 1946.

Bowers is a veteran of almost 22 years' service with Oilwell, having been employed in March 1929. After serving in various stores in Texas, Oklahoma, and New Mexico, he was appointed manager of the Odessa store in 1937. He held that position until he was named assistant district manager of the West Texas district in 1948, and district manager in August 1949.

Hazel joined Oilwell in July 1930, following his graduation from Pennsylvania State College with a B.S. degree in mechanical engineering. In 1937 he was named district manager of the company's West Texas operations. He returned to East Texas as district manager and the following year moved to Houston. Later in 1942 he was transferred to Imperial Works as assistant to work manager. He served in this capacity until September 1943, when he entered the U. S. Navy. He returned to Oilwell in 1946, as assistant to vice president in charge of sales. He subsequently was promoted to assistant general manager of sales and then general manager of sales.

Persons Is Elected Sales Head of Lincoln Electric

At a meeting of the board of directors January 8, W. R. Persons was elected vice president in charge of sales of The Lincoln Electric Co. He was advanced to his new position as an officer of the company from his former one of general sales manager which he has filled since 1946.

Persons joined Lincoln in 1934, going to the Pittsburgh branch as a welding engineer. He graduated from Case Institute of Technology with an M.S. degree in engineering in 1932. He was made district manager of the Pittsburgh territory in 1937.

In 1946 he was transferred to the main office in Cleveland for a special postwar-planning assignment. From this assignment he was promoted to general sales manager in 1946.

Lunkenheimer Names Arnall President, Succeeding Rhame

P. M. ARNALL

Election of Paul M. Arnall as president of The Lunkenheimer Co., of Cincinnati, pioneer valve firm with plants in Cincinnati and Carthage, has been announced by the company's board of directors.

Arnall, who assumed his new duties on January 2, succeeds Frank P. Rhame, who resigned. Rhame, affiliated with Lunkenheimer for 32 years, will continue as a director and in an advisory and consulting capacity with the 88-year old valve firm; however, he was appointed Lunkenheimer president in 1945 and was previously vice president in charge of sales engineering.

The new Lunkenheimer head joined the firm only a year ago. After his education at University of Kansas, Arnall began his business career in 1920 with Graton & Knight Co., manufacturer of leather belting and mechanical specialties, joining that firm as a salesman and advancing to branch manager, district manager, and sales manager of the belting division; and assistant general sales manager.

In 1938 Arnall went to Ohio Injector Co., of Wadsworth, Ohio, valve manufacturer, as general sales manager. Promoted to vice president in charge of sales in 1940, he was executive vice president and a director of O.I.C. when he relinquished the post to become associated with Lunkenheimer in January 1950.

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UNDISPLAYED CLASSIFIED 12c a word one issue. 10% Discount three or more issues. $3.00 minimum charge. Blind Box in our care counts nine words. Payable in Advance.

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$12.00 a column inch one issue . . .
10% Discount three or more issues.

EQUIPMENT FOR SALE

USED ROTARY AND CABLE TOOL DRILLING TOOLS, WIRE LINES, E. A. KELLY, BOX 861, OKLAHOMA CITY. PHONE 5-6407.

FOR SALE: At Odessa, Texas, 1 Used 125 HP, 300# Working Pressure Donovan ASME Code Boiler equipped with Elesco Superheater and Fittings, purchased new 1936, $2500. Cities Service Oil Co., Patridge, Bartlesville, Oklahoma.

A BARGAIN

7500 FOOT ELECTRIC DRILLING RIG

H-46 Emsco Draw Works with 40" Hydromatic Brake & Tank, 3—300 H.P. Sterling Engines, gas or butane, 1—150 KW Generator, 1—175 KW Generator, 1—150 H.P. Motor, 1—200 H.P. Motor, 7¼" x 18" Power Pump, Regan Crown Block, Gumbo Buster Traveling Block, B-6 Emsco Swivel, 26½" Emsco Oil Bath Table, Shale Shaker, 13⅜" Type MP Cameron Blow Out Preventer, 2—Steel Tool Houses, complete with all necessary accessories less drill pipe & derrick—inventory on request—Price $27,500 F.O.B. location. H. A. McCarthy, 310 Thompson Bldg. Phone 5-3296, Tulsa, Okla.

MODEL K Cardwell single drum servicing unit, mounted on 1943 K-8 International 6x6, 5 to 6000 ft. capacity, 3 Sheave single pole mast—8"-10", excellent condition, with or without tools. B&G Well Service, Winfield, Kans., Phone 2401.

2½" SEAMLESS TUBING

5,400 ft. 2⅞" O.D. 6.4# Regular Tubing N-80, Range 2, 8-Rd. Thread, once run, like new.
Location: Queley Dome, Wyoming.

Mid-States Pipe & Supply Co.
Phone: 2-9128 **Tulsa, Oklahoma**

FOR SALE

NEW SEAMLESS

4000′ H-40 5½" O.D. 14# 8 R.T., R 2 Pittsburgh area
1750′ J-55 8⅝" O.D. 24# 8 R.T., R 2 Pittsburgh area

A-1 USED SEAMLESS

9000′ H-40 5½" O.D. 14# 8 R.T., R 2 N. Central Ohio
9000′ J-55 5½" O.D. 15½# 8 R.T., R. 2 N. Central Ohio
4000′ J-55 5½" O.D. 17# 8 R.T., R 2 N. Central Ohio
10000′ H-40 7" O.D. 17# 8 R.T., R. 2 Central Michigan
1200′ J-55 7" O.D. 20# 8 R.T., R 2 Central Michigan
2000′ J-55 5½" O.D. 17# Long T. & C., R. 2 Central Michigan
(Last two items as a package)
15000′ Class C2 2⅜" O.D. External Upset, 10 V.T., R. 2 Central Michigan

LAP-WELDED

3300′ 5½ O.D. 17# Central Michigan
2500′ 5½ O.D. 20# Central Michigan
20,000′ 7" O.D. 20# N. Central Ohio
1300′ 8⅝" 24# Central Michigan
900′ 8⅝" O.D. 28 and 32# Central Michigan
900′ 10¾" O.D. 41.85# Lap-weld and seamless drive pipe, Central Michigan.

MICHIGAN CARLON PIPE COMPANY
20120 Livernois **Detroit 21, Mich.**
DIamond 1-1400

EQUIPMENT FOR SALE

FOR CABLE TOOLS
DEGEN PIPE AND SUPPLY CO
Box 107, Red Fork Station, Tulsa, Oklahoma

FOR SALE: 8,000′—2¼ OD used seamless steel tubing. 40′ lengths. Excellent condition. Price per foot 25 cents F.O.B. Joplin, Missouri. Joplin Machinery & Electric Company, Joplin, Missouri.

FOR SALE: Two Sullivan 37 special rigs mounted on International trucks, Waukesha and Buda drill motors, 1800 ft. Sullivan 2⅜ tool joint pipe 20 ft., two 900 gallon water tanks mounted on late model Chevrolet trucks, two 4 wheel rod trailers, two 260 gallon gasoline trailers. Equipment in top shape, used less than two years. Nothing additional needed to start drilling. Good supply extra parts. TRANS-TEX EXPLORATION CO. Box 558, Abilene, Texas. Phones 8130—2-7565.

AVAILABLE for sale and immediate shipment line pipe, seamless and lapweld casing, tanks. Call or write Edco Pipe & Supply Company, Box 565, Drumright, Oklahoma.

NEW J-55 CASING AND TUBING
Trade for
Override or Working Interest
Write
P. O. BOX 1858, TULSA, OKLAHOMA

EQUIPMENT FOR SALE

FOR SALE: 1946 Cardwell QST Servicing unit with 48′ 7"x8" Cardwell Mast. Suitable for 3500′ 2½" tubing. Complete set tubing and rod tools. Mounted on 3-Ton EH Mack truck. Frank Jones, McPherson, Kansas.

NEW TOWERS—1 7′-6" ID x 85′-7", 21 steel trays. One propane deasphalting plant, consisting of 3-3′ ID x 50′, 500# treating towers; 2-3′ ID x 38′ stripping towers; 1-3′ x 20′ scrubbing tower; 1-2′ x 14′ suction trap; 1-2′ x 14′ Interstage cooler. Kinslow Power & Equipment, Inc., 817 South Boulder, Tulsa, Oklahoma.

NEW STEEL PIPE

22" OD, 24" OD, 26" OD
¼" wall—40 foot lengths
Approximately 1000 feet of each
Ideal for conduit, culvert and water

Write—Wire—Phone

Sonken-Galamba Corp.
2nd and Riverview (X-677)
Kansas City 18, Kansas
THatcher 9243

FOR SALE

75,000′ 2" O.D. x .145" Wall 2.7# Reconditioned Seamless Tubing, 14′ Lengths and over.

30,000′ 2⅜" O.D. 3.75# & 4# Good Used Lapweld T&C Range 1 Line Pipe.

20,000′ 2⅜" O.D. 4# Good Used Lapweld Range 1 Tubing with New 11½ V-Threads and Collars.

18,000′ 3" O.D. .300/.375" Wall 9.7# Seamless Tubing, Plain Ends, 23′-26′ Lengths.

3,200′ 5" O.D. x .438/.563" Wall 24.03# Seamless Tubing, 17′-25′ Lengths.

1,500′ 5½" O.D. 10# Reconditioned Seamless Casing, New 11½ V-Threads and New 5½ Collars (Recommended for Shallow Wells).

7,500′ 6⅝" O.D. 13# Good Used Lapweld Range 1 T&C Casing.

15,000′ 6⅝" O.D. 18.97# Excellent Grade Used Lapweld, Cleaned, Beveled Ends, 20′ Random Mill Lengths.

5,000′ 7" O.D. Good Used Lapweld Range 1 T&C Casing, 10 V-Threads.

3,200′ 8⅝" O.D. 25# Good Reconditioned Casing, T&C, 8 V-Thds., Range 1.

1,700′ 10¾" O.D. 35.75# Good Used Lapweld T&C Casing, Range 1, 8 Thread.

THIS MATERIAL IS AVAILABLE FOR IMMEDIATE DELIVERY, SUBJECT TO PRIOR SALE

OTHER SIZES OF LINE PIPE, SEAMLESS TUBING IN SUITABLE SUBSTITUTE SIZES FOR STANDARD PIPE (EXCELLENT FOR GAS, GATHERING AND FLOW LINES), CASING AND TUBING AVAILABLE FOR IMMEDIATE DELIVERY.

FOR FURTHER INFORMATION, WIRE OR PHONE AT ONCE

A. J. STRUBEL, Broker

SIDney 1731 (Day Phone) HUDson 8152 (Night Phone) . . . 4946 Murdoch, St. Louis, Mo.

EQUIPMENT FOR SALE

FOR SALE: One 225 HP Waukesha Motor Model N K U—Skid mounted with Clutch and pulley, used less than thirty days. Suntex Drilling Company, 216 Braniff Building, Oklahoma City, Oklahoma.

FOR SALE: Three Cooper Type 80 size 18″ x 20″ Single Gas Engine Compressors with 17½″ x 20″ Compressor Cylinders and two ditto with 7¾″ x 20″ cylinders. The Ohio Oil Co., Refining Dept., Robinson, Illinois.

FOR SALE: Cooper skid unit with Allis-Chalmers E 60 engine. Mounted on 6X6 G.M.C. truck. With or without 8 in. X 10 in. X 65 ft. single pole mast. R. G. Scott, Seminole, Okla. Phone 877.

WELL equipment. New and used spudders, rotaries, core drills, all sizes and types. Cable tools, drill pipe, bits, pipe. Fishing tools rented. Everything for well service. Pressey & Son, Pueblo, Colo.

1—4′-0″ ID x 40′-6″ x 1¼″ thick Tower. No trays. Tri-State Supply Company, Box 610, Mt. Pleasant, Texas.

FOR SALE: 24-L Bucyrus Erie Spudder, trailer mounted, excellent condition, complete with tools and wire line ready to drill. Box 1755, Parkersburg, W. Va.

Gaso Duplex 4½″ x 6″ Power Pumps with Chrysler C-36 Engines, skid mounted, immediate delivery. Also Byron Jackson, Carter Centrifugal Units. Westinghouse 20-25-50 KW Generating Units.

H. H. COFFIELD
Attn.: W. H. ORR
Phones: 132—Rockdale, Texas
AT-3427—Houston, Texas

Welded Stock Tanks

100 Barrel to 300 Barrel inclusive, manufactured to A.P.I. Specs., available immediate delivery.

MID-STATES TANK MFG. CO.
Tulsa, Okla.
Day Ph. 2-9128 Nite Ph. 4-1893

EQUIPMENT WANTED

WANT SPUDDER: Rotary & Driller. Also will farm out shallow oil properties; wells drilled, less than $500 each. Give Telephone. Box D-841, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED TO BUY: Seven inch hydraulic Casing Pulling Jacks with spiders. FOR SALE: Cardwell single drum, well service unit. Spools 10,000—¾″ wire line. Box 4387, Oklahoma City, Okla.

WANTED: 5,000′ 5″ O.D. Seamless Oil Well Casing, Range 2. Michigan Carlon Pipe Company, 20120 Livernois Avenue, Detroit 21, Michigan.

WANTED—FOR SALVAGE!

We will pay spot cash for:

DISCONTINUED PIPE LINES
and
ABANDONED OIL WELLS

Write us complete details or phone us collect.

VALLEY STEEL PRODUCTS CO.
124 Sidney St. St. Louis 4, Mo.
LAclede 2100 P. L. LaBarge

HELP WANTED

EXPERIENCED GEOLOGIST, qualified for division Geologist Rocky Mountain area, with minimum eight years' experience. Wide experience desirable; four years' experience in Rocky Mountains required. Location Denver. Write, giving full details. Replies confidential. Box D-830, The Oil and Gas Journal, Tulsa, Oklahoma.

HELP WANTED

SHIFT SUPERVISOR: Responsible for supervision of Catalytic Cracking and Poly Plant operations, plus general supervision over process workers during shift. Must be experienced and thoroughly familiar with all phases of refinery operation. Location—Artesia, New Mexico. Write New Mexico Asphalt & Refining Company, Artesia, New Mexico, giving full particulars of qualifications, experience and references.

ECONOMIST preferably with experience in oil refining for large company offices on East Coast. Preferred age 30-40. Please state full qualifications and minimum acceptable salary. Box D-SAL, The Oil and Gas Journal, 415 Lexington Ave., N. Y.

FOREIGN and Domestic Oil Employment Directory covering the oil industry, showing where to apply for jobs. Price $5.00. Oil Industry Mailing List, Box 2603, Tulsa, Okla.

WANTED: By reliable company more than 30 years in the business. Experienced oilfield machinery and engine salesman in Mid-Continent area. Write qualifications and experience. Box D-833, The Oil and Gas Journal, Tulsa, Oklahoma.

EXPERIENCED GEOLOGIST qualified for geological work in connection with reservoir engineering. Five years experience necessary.. Experience in Permian Basin desirable. Box D-857, The Oil and Gas Journal, Tulsa, Oklahoma.

WELL-KNOWN GEOPHYSICAL COMPANY HAS OPENING FOR AN EXPERIENCED SEISMIC PARTY CHIEF AND A COMPUTER. EXCELLENT OPPORTUNITY WITH COMPENSATION BASED ON COMPETENCE OF APPLICANTS.

Box D-831

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

ASPHALT REFINERY
SUPERVISOR AND TECHNOLOGIST

We have an immediate opening for a man whose educational background and experience qualifies him to supervise a refinery asphalt department. He will be responsible for the development and manufacture of a wide variety of asphaltic products. We feel this is an excellent opportunity for the right man and starting salary is commensurate with ability and experience. Location: East Central U. S. Address request for application to Box D-854, The Oil and Gas Journal, Tulsa, Oklahoma, and include a brief summary of vital statistics, education and experience. All applications will be held in strict confidence.

Positions open for
ENGINEERS
Process (Chemical)
Engineers
Construction Engineers
Project (Mechanical)
Engineers

To Work On
Petroleum, Petro-Chemical and Chemical Projects

Write in complete detail, giving age, positions held, references, education, salary expected. Personal interview can be arranged.

Address Personnel Department

E. B. BADGER
& SONS COMPANY
75 Pitts St., Boston, Mass.

HELP WANTED

PRACTICAL, experienced operations superintendent for independent oil company. Must be thoroughly qualified to direct the details of oil production, work-overs and well completions at all depths. Location will be in Texas but operations cover several states, mostly Texas, Louisiana, Arkansas and Mississippi. Write giving details of qualifications and experience to Box D-858, The Oil and Gas Journal, Tulsa, Oklahoma.

THE NEWLY organized Venezuelan Atlantic Transmission Corporation requires a Superintendent of Transmission to be responsible for physical operation of line, compressor plants along the line, transmission of gas and the forecasting and dispatching of the operation of a natural gas line. Must have minimum of 5 years experience with large natural gas company. Graduate engineer preferred. Starting salary in the range of $13,000 per year plus liberal monthly living allowances. Give full details in reply to The Atlantic Refining Company, P. O. Box 2819, Dallas, Texas.

ELECTRICAL ENGINEER: New large oil pipeline company requires electrical engineer to handle design, construction and devise maintenance procedures, all classes equipment to 5-KV switch gear. Some familiarity with sub-stations to 110-KV, 5000-KVA desirable but not required. No communications or electronics involved. Include full professional and personal details and minimum salary, first letter. Job is permanent. Box D-761, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED
FIRST-CLASS INSTRUMENT MAN
Background in oil refinery or chemical plant instruments. Ability to instruct and train personnel in department. Good opportunity in rapidly expanding organization. Denver, Colorado, location. State full particulars in first letter. Reply Box D-856, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED—INSTRUMENT MEN

Experienced in oil refinery or chemical plant instruments. Denver, Colorado, location. State age, experience and salary expected in first letter. Box D-855, The Oil and Gas Journal, Tulsa, Oklahoma.

RIGGING SUPERVISOR

Large east coast refinery seeks rigging department supervisor. Require sufficient engineering background to supervise rigging operations in construction and maintenance work. Capable of directing large staff. Complete working knowledge of heavy mechanical equipment required.

Write giving age, experience & salary desired. **Box D-838, The Oil and Gas Journal, Tulsa, Oklahoma.**

HELP WANTED
CHIEF GEOLOGIST

Good opportunity for geologist with sufficient education, training and experience to act as Chief Geologist for strong independent oil company. Location, Houston. Write giving complete details of personal and employment history. Replies confidential. Address—

Box D-824, The Oil and Gas Journal, Tulsa, Oklahoma

CHEMICAL ENGINEER

A large Chemical Corporation with home offices in Maryland requires services of several chemical engineers and/or graduate chemists. One to five years' experience, preferably in petroleum and petroleum catalyst research.

Salary commensurate with responsibility in an aggressive growing organization.

Box D-861

The Oil and Gas Journal
Tulsa, Oklahoma

HELP WANTED

ENGINEERS, EXECUTIVES, TECHNICAL MEN, SALARIED POSITIONS—$3600 TO $30,000. THIS CONFIDENTIAL SERVICE FOR OUTSTANDING MEN WHO DESIRE A CHANGE OF CONNECTION, WILL DEVELOP AND CONDUCT PRELIMINARY NEGOTIATIONS WITHOUT RISK TO PRESENT POSITION. SEND NAME AND ADDRESS FOR DETAILS. TOMSETT ASSOCIATES, 1204 BERGER BLDG., PITTSBURGH 19, PA.

THE NEWLY organized Venezuelan Atlantic Transmission Corporation requires an experienced Combustion Engineer to promote the sale of natural gas to Venezuelan industries. Must be able to demonstrate advantages of natural gas consumption and advise customers on plant conversion. Prefer candidate with working knowledge of Spanish. Starting salary range approximately $8,500 per year plus liberal living allowances. Give full details in reply to The Atlantic Refining Company, P. O. Box 2819, Dallas, Texas.

SALES ENGINEERS
OPERATIONS SUPERVISORS
PERFORATOR OPERATORS

Only Experienced Men Need Apply

WRITE ONLY

WELEX JET SERVICES, INC.
3909 Hemphill Street, Fort Worth 9, Tex.

SITUATIONS WANTED

ATTENTION: Well established oil well drilling contractor desires to manage and supervise: Individuals', groups', small or medium-sized oil companies' drilling, production and operating problems in Central and Western Texas, and New Mexico. Personal interview by appointment is desired. Makin Drilling Company, Box No. 131, Ph. No. 131, Hobbs, New Mexico.

DRILLING Contractor operating in West Texas and New Mexico desires to contact small or medium-sized independent oil company who needs an operating manager. Personal interview desired. Twenty years experience in all phases of the oil industry. Address replies to Box D-644, The Oil and Gas Journal, Tulsa, Oklahoma.

REFINERY Manager, twelve years experience in all phases of refinery operations, technical background. Prefer Kansas, Oklahoma, or Texas location. Box D-836, The Oil and Gas Journal, Tulsa, Oklahoma.

INDEPENDENT Oil Operator with geological degree and several years geological experience wishes to become associated with individual or group investing or desiring to invest in the oil business, on a salary-interest basis. Familiar with all phases of operation and capable of directing the program desired. Such association should be mutually beneficial. Conference can be arranged after preliminary negotiations. Write Box D-834, The Oil and Gas Journal, Tulsa, Oklahoma.

ENGINEERING PURCHASING AGENT: Seven years purchasing experience, licensed professional engineer, New Jersey, age 38, veteran, draft-proof. Box D-864, The Oil and Gas Journal, Tulsa, Oklahoma.

LANDMAN and TITLE CURATOR, age 28, five years' experience contract land work. Desire position with Major or Large Independent. Capable of all phases Land Department. Box D-844, The Oil and Gas Journal, Tulsa, Oklahoma.

PETROLEUM ENGINEER: Married, 30, graduate Texas A. & M., eight years diversified production, drilling, and surveying experience. Will consider any engineering position offering opportunity for advancement. Box D-839, The Oil and Gas Journal, Tulsa, Oklahoma.

GRADUATE GEOLOGIST
desires position with Los Angeles headquarters. Atlantic 4-2420, Los Angeles.

LANDMAN, twelve years experience with background of scouting, production accounting and purchasing desires permanent connection. References furnished. Available February 15th, 1951. Write Box D-849, The Oil and Gas Journal, Tulsa, Oklahoma.

ENGINEER, 1 year experience petroleum engineering Lab. 2 Years drilling operations. Desires Domestic or Overseas position. Box D-803. The Oil and Gas Journal, Tulsa, Okla.

SITUATIONS WANTED

FIFTEEN YEARS Gas, casinghead gas, industry. 36 year old junior executive presently employed, desires change. Box D-862, The Oil and Gas Journal, Tulsa, Oklahoma.

LANDMAN, attorney, age 35, major oil company experience in all phases of land and legal work. Prefer district landman job. Locate anywhere. Box D-860, The Oil and Gas Journal, Tulsa, Oklahoma.

GEOLOGIST: M.A., single, one year's experience in surface and subsurface geology. Interested in exploration—U. S. or foreign. Box D-859, The Oil and Gas Journal, Tulsa, Oklahoma.

TITLE ATTORNEY—Draft exempt, thoroughly experienced in oil industry, desires connection with a future. Box D-863, The Oil and Gas Journal, Tulsa, Oklahoma.

BUSINESS OPPORTUNITIES

BUSINESS FOR SALE: Fox Paraffin Solvent Manufacturing Company. Patented formula. Sacrifice price. Terms acceptable. Owner deceased, reason for selling. Box D-835, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE as a going concern Hightower Oil & Refining Corporation, Brownwood, Texas. Lease equipment, drilling equipment, sundry production equipment, gas distribution equipment, office building, office equipment, automobiles, trucks, leasehold interests, royalty interests, office site, City of Brownwood, right-of-way, shop equipped. For details as to assets inquiry should be addressed to Hightower Oil & Refining Corporation, Brownwood, Texas. TERMS: Cash.

LEASE AND DRILLING BLOCKS

WANTED: Producing royalties, leases, lands, Texas, Oklahoma, Louisiana; elsewhere; from owners, brokers, bankers, lawyers, geologists, abstracters. Important: quote price; income; description. Also make loans. American Investments, Box 38-J, Houston.

FOR SALE: Oil and Gas Leases adjoining producing leases, also wildcat leases, Drilling propositions and small producing properties; all in shallow territory. W. P. Harley, Bowling Green, Ky.

FOR SALE: Interest in large acreage on The Liedy Gas Structure, at Renovo, Penna. Box D-848, The Oil and Gas Journal, Tulsa, Oklahoma.

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PATENT ATTORNEYS

PATENT Practice before U. S. Patent Office. Validity and Infringement Investigations and Opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommell, Registered Patent Attorneys, Suite 418, 815-15th Street, N.W., Washington 5, D. C.

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Box D-832

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Tulsa, Oklahoma

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Tulsa, Oklahoma

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MONTANA ROYALTIES
Millions of acres now leased by world's major companies, with huge drilling play in prospect. For booklet describing Montana geology and oil development, write Landowners Royalty Company, Box 1225 Great Falls, Montana.

WE will buy producing or non-producing oil royalties. Standard Security Company, 115 Broadway, New York 6.

PRODUCTION FOR SALE

40 ACRES with three sand wells, 1200 bbls. monthly production, near Tulsa. Owners wish to retire. P. O. Box 26, Tulsa.

FOR SALE: 57 Oil and Gas wells, settled production, well equipped. Half may be pulled without affecting production very much. For particulars write Box 1755, Parkersburg, W. Va.

South American Oil Meet

Plans are being completed for the first South American Oil Congress, which will be held in Montevideo, Uruguay, March 12-16.

Main objectives of the congress are: To study ways and means to promote production of crude oil and its by-products in South America; to consider methods which should be recommended to obtain maximum economy in production and use of crude and its byproducts; to investigate possibilities of increasing exchange of fuels between the South American countries; and to strengthen the friendly relations and exchange of ideas between South American oil men.

A technical and scientific program has been planned. The Instituto Sudamericano del Petroleo is the organizing institution. Every subject or proposal relating to matters of a political character, whether national or international, will be excluded from the agenda.

AFRICA

Ethiopia Survey Completed

Sinclair Petroleum Co. has completed an airborne-magnetometer survey on its Ethiopian concession and is continuing seismograph work in the area.

The company also is engaged in collating and study of the results of the geological and geophysical work. The magnetometer survey was carried out by Rogers Ray Co., Houston, under contract. Gumburo 1, the first test on the concession, was suspended last April after going to more than 10,000 ft.

EUROPE

German Oil Output

Western Germany's oil industry set production record in 1950, but discoveries were not as impressive as in 1949

THE oil industry in Western Germany turned in an all-time high production in 1950, but on the exploration side of the ledger, the discovery record was not as impressive as the particularly good year of 1949.

The total production in 1950 of 1,118,405 tons (equivalent to about 21,600 bbl. daily) surpassed the former peak yield of 1,056,187 tons (20,400 bbl. daily) which was achieved temporarily in 1940 under forced-production methods. The 1950 output was more than double that of 1945 and represented an increase of nearly 33 per cent over 1949.

With a share of 45.1 per cent, the Emsland district near the Dutch border for the first time in 1950 took the leading position among German producing areas, followed by the Hanoverian area with 44.4 per cent, Schleswig-Holstein with 10 per cent, and Baden, with 0.5 per cent.

Development responsible. — Analysis of last year's production in Western Germany shows that the greater part of the increase is the result of continued development of discoveries made in the late 30's and the early 40's. This bears out the fact years of drilling are required to develop a field to the height of productivity.

Of the 277,000 tons (5,400 bbl. daily) by which production was increased over 1949, 92,000 tons (1,800 bbl. daily) was accounted for by the largest German field, Georgsdorf in Emsland which in 1950 provided about 20 per cent of the entire German total. Emlichheim yielded 25,000 tons (500 bbl. daily) more than in 1949. In both these fields, the increase would have been even greater had not the operators decided to reduce production in order to maintain reservoir pressure.

Lingen-Dalum field, which was successfully extended during the year, showed a production increase of about 14,500 tons (about 300 bbl. daily), and 17,000 tons additional (about 350 bbl. daily) was reported from the Hanovarian fields, Steimbke, and Wesendorf. Minor increases in other fields balanced the natural decline of some of the older areas.

New fields.—The fields discovered in the last 2 years in Emsland and Hanover produced 105,500 tons (about 2,000 bbl. daily). First among them was Suderbruch with 33,878 tons, followed by Ruehlermoor with 30,764 tons. Quakenbrueck, where production can only be carried out with heated tubing due to the high cold test of the crude, produced 13,014 tons in 1950.

The German industry last year drilled a total of approximately 400,000 m. (1,300,000 ft.) representing about a third more footage than in 1949. Several discoveries were made, though not in the aggregate of the importance of those of the preceding year. More than 100 deep wells were abandoned without positive results. New discoveries were at Quakenbrueck, Wathlingen and Eddesse-Nord, as well as in wells near Diepholz (St. Huelfe and Rheden) where, however it is doubtful whether production can be achieved owing to the very high cold test of the crude. Exploration in southern Wuerttemberg was encouraging, and good results can also be expected later from deep drilling done in 1950 in Schleswig Holstein.

Private firms.—Of the total German production in 1950, 63.8 per cent was accounted for by private German companies, 21.3 per cent by private foreign firms (Socony-Vacuum and the Royal Dutch-Shell-Jersey Standard combination), and 14.9 per cent by state-owned German companies.

The following table shows West German production by areas in 1949 and as shown in the preliminary figures for 1950 (one ton equal to about 7.07 bbl.):

District—	1949	1950
Emsland	324,940	504,560
Hanover	412,712	496,306
Schleswig-Holstein and Hamburg	98,024	111,598
Total, Northwest Germany	835,676	1,112,464
Baden	5,900	5,941
Total	841,576	1,118,405

Refinery Contract Let

The Lummus Co. has been given a contract for the construction of the major new refinery which a Standard Oil Co. (N. J.) affiliate will build in Antwerp, Belgium.

The plant will be built by Esso Standard Refinery, whose organization was announced by the Jersey company in September 1949. It will have a capacity of about 25,000 bbl. daily, and, according to reports in the trade, will include one of the improved Model 4 fluid catalytic cracking units.

Construction work on the plant is expected to get under way in the spring. Some work has been in progress on harbor facilities.

BD. PER. GEN.

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An Important Message for Every Oil Producer

How to Keep Flooding Water From Plugging Your Input Formation!

Install INFILCO *Water Conditioning Equipment*

Water forced through the fine pores of oil sand *must be* properly *conditioned* or plugging is sure to result. As a producer you can't take chances. Other producers have eliminated this problem by the installation of Infilco water conditioning plants. These efficient plants remove suspended solids, and prevent the formation of chemical reaction products and organic growths on the face of the formation. Some producers use water from lime formations, some from nearby lakes, some from streams, but, in every case *exclusive* and *time-tested* Infilco methods and equipment assure them a crystal clear, chemically stable water that is ideally suited for flooding purposes.

You can expect the same performance from Infilco water conditioning equipment on your producing site. The reason? Infilco's free laboratory service determines the exact characteristics of your water supply. Then, by combining over 55 years of water conditioning research and experience with the freedom of being able to select from a *complete range* of Infilco designed and manufactured equipment, a plant is recommended which exactly fits *your* needs.

Make sure the water you put in your wells produces results—not failures. Call in the nearest Infilco Field Engineer. Or write our executive offices in Tucson for free laboratory and water analysis service. There's no obligation, of course—only the obligation to yourself to investigate the offerings of the leader—*Infilco!*

SERVING THE OIL INDUSTRY WITH
WATER CONDITIONING EQUIPMENT THAT'S

Quality Engineered for Quality Performance

INFILCO
• BETTER WATER CONDITIONING AND WASTE TREATMENT SINCE 1894

INFILCO INC.

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SALES OFFICES IN TWENTY SIX PRINCIPAL CITIES

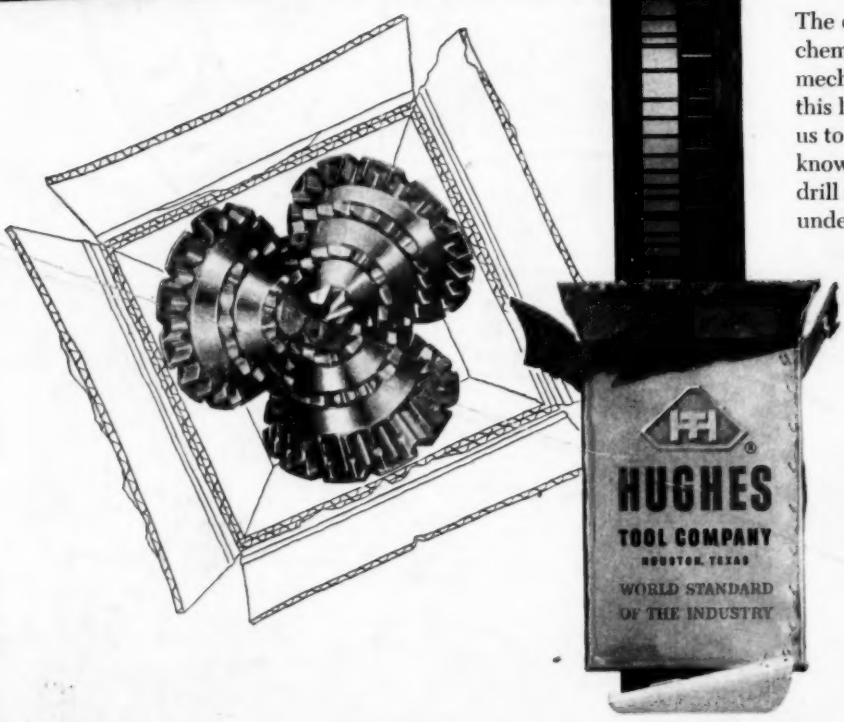
WORLD'S LEADING MANUFACTURERS OF WATER CONDITIONING AND WASTE TREATING EQUIPMENT

ORIGINATORS OF
Welex
JET PERFORATING

The story behind Hugh
new $2,000,000 Research Laboratory

Since 1911, Hughes Tool Company has maintained a continuous research program aimed at improving bit design and drilling performance.

To expand our already established leadership in research, we are building a new $2,000,000 laboratory which will represent the finest full-scale project of its kind in the world.

The complete metallurgical, chemical, welding and mechanical testing facilities of this laboratory will permit us to greatly extend existing knowledge of what happens to drill stems and rock bits miles underground. New techniques in drilling will be tested under carefully controlled, simulated field conditions.

This big, new laboratory, with our staff of trained field and research engineers, is *an investment in the future.* It is evidence of our determination that Hughes know-how and Hughes products will continue to be the "World Standard of the Industry."